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# DOMINION DENTAL JOURNAL I

(Official Organ of the Canadian Dental Associations.)



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# Dominion Dental Journal

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## Original Communications

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### FILLING TEETH WITH GOLD.

BY C. N. JOHNSON, L.D.S., D.D.S., CHICAGO, ILL.

Read before the Canadian Dental Association, Montreal, September, 1902.

The subject assigned me by the Programme Committee is so broad in its scope that I cannot hope to do more than touch briefly on one or two of its many phases. I cannot consider, as I should have been pleased to do, the relative value of gold as a filling material compared with the other materials at present available for our use, neither can I enter into a discussion of the comparative merits of the various forms of gold, such as sponge, crystal, deposit gold, or the foils. It is without doubt a fact that the major portion of gold used to-day for filling teeth is in the form of foil, and it has been suggested that I take up for consideration the technique of the operation of filling a cavity with foil.

This leads to a brief recognition of the difference between cohesive and non-cohesive foil because of the fact that in the routine work of the office the two forms may be combined to better advantage and with more satisfactory results than can be secured by the exclusive use of either. It goes without saying that in the extensive contour operations of the day we are obliged to use a certain amount of cohesive gold to obtain the most perfect results, which is equivalent to the assertion that non-cohesive gold cannot be depended on to meet all the requirements of model dental practice. In fact, there are operators of repute who claim that they have no use whatever in their practice for non-cohesive gold, and who build their fillings from start to finish with cohesive gold alone. It is not to be denied that good and lasting fillings may be made in this way, and yet there are certain characteristics possessed by non-cohesive gold which place it in a position not to be ignored by those who wish to

obtain the best possible results in the shortest possible time and with the minimum expenditure of energy. Non-cohesive gold is not used by the profession generally to the extent that it should be, and for two principal reasons: its possibilities are not fully recognized, nor its manipulation well understood. The place of all others where non-cohesive gold is indicated is in the starting of fillings, and it is often abandoned for this purpose on account of faulty form of the cavity. It is not within the province of this paper to consider, except in an incidental way, the subject of cavity preparation, and so this statement must suffice for the present unless the question be further brought out in the discussion.

Non-cohesive gold may serviceably be made the basis of most of the gold fillings we insert and in many instances it may be used to advantage for one-half and even two-thirds of the filling. Its advantages lie in the fact that it can be built up in much less time than can an equal bulk of cohesive gold, and that it is more readily adapted to walls of cavities, thereby accomplishing the chief end of a filling by effectually sealing the cavity. This statement should not be interpreted as an intimation that perfect adaptation is not possible with cohesive gold. Cohesive gold may be made to hermetically seal a cavity, but its manipulation is more exacting and the process slower than with non-cohesive gold. Non-cohesive gold can be condensed in larger masses than cohesive with less danger of bridging over spaces and leaving airholes.

This matter of air spaces in gold fillings is one of the very greatest importance, and next to the problem of perfectly sealing the cavity is one which should command our constant attention. To obtain uniform density in a gold filling, particularly if it is built largely of cohesive gold, great care must be exercised in placing and condensing the pellets or cylinders, and especially with regard to the arrangement of the layers of foil in the cylinder, and the systematic order in which the cylinders are laid on in building the filling. A haphazard method of stuffing the cylinders into the cavity without thought of the relation of the layers of foil one to the other, or to the cavity itself, will result in a filling lacking in density and deficient in strength. Non-cohesive gold is not so seriously affected by abuse in this particular as is cohesive on account of the fact that lack of cohesion allows the layers of foil to slide past each other and settle down into a more intimate relationship one with the other throughout the mass than where cohesion causes a sticking together of the layers on contact, with no subsequent movement under pressure. This matter of the placing of the pellets will receive further consideration later on in the paper when discussing the detail of building a filling in a typical cavity.

In condensing gold fillings the question always arises as to



the most suitable force to be employed—whether hand pressure or mallet impact, and if the latter, what particular kind of mallet is most suitable. Without going into the philosophy of force as it relates to this question, it may be stated that an operator is not doing his patient full justice unless he employs both hand pressure and mallet force under the varying conditions which present themselves in routine work. There are certain conditions in which it is impossible to get direct mallet impact, and in these cases hand pressure is our only reliance. But wherever the mallet can be used it gives condensing power concentrated at the point of impact greater than is possible with hand pressure, and therefore more effective in making substantial work.

For convenience in illustrating the technique of building gold fillings it may seem desirable to take a typical complex cavity and outline the procedure from beginning to end, for while the details are somewhat different with the different classes of cavities, the principles are always the same, and a single illustration will suffice for all. Probably the most interesting and suggestive cavity for this purpose would be a proximo-occlusal cavity in a bicuspid or molar—one which reaches from the gingival line on the proximal surface over into an anchorage step on the occlusal surface.

In view of the method to be employed in starting the filling it may be necessary to make a brief reference to the form that should be given these cavities in order to secure the best results, not only as they relate to the ease with which the filling may be built, but as to the subsequent stability of the filling under the impact of mastication. Cavities of this class should be formed with a flat gingival wall instead of with a curved wall, as is so often done. The gingival wall should join the buccal and lingual walls at right angles, and whenever possible there should also be a distinct angle where the axial wall joins the gingival, buccal and lingual walls. There should be a sharp point-angle in the gingivo-axio-lingual and gingivo-axio-buccal corners of the cavity. The occlusal anchorage step should also be given a flat seat for the filling to rest upon, and this should join the surrounding walls of the step at right angles. A cavity so formed will admit of the filling being started with the greatest possible ease and with no danger of subsequent rocking under the mallet.

There are two principal methods of preparing non-cohesive gold for starting these fillings, one in the form of ropes, and the other in the form of cylinders or pads.

If a rope is used it may be made from a sheet of No. 4 non-cohesive foil, using a third, a half, or even a whole sheet, as the area of the gingival wall may suggest. The thickness of the rope should in all cases be great enough to extend from the axial wall well over gingival margin of the cavity when laid on its side along

the gingival wall. When the rope is twisted, it may be cut into suitable lengths for the case in hand, usually from three-fourths of an inch to an inch. With a mass of non-cohesive gold of this size these fillings may be started and the gingival third built in a relatively short time. The *modus operandi* is to grasp the rope with strong-pointed pliers about four or five millimeters from one end and carry this down into the gingivo-axio-lingual angle of the cavity and then fold the rope over and over along the gingival wall toward the buccal wall. If the rope reaches entirely across the gingival wall from lingual to buccal, it should be partially condensed before another rope is added, but if it does not extend to the buccal wall it should be merely tucked up into the gingivo-lingual angle with the pliers and another rope wedged into the gingivo-buccal angle. When the gingival wall is completely covered with gold a plugger having a stiff shank and a serrated end as broad as the mesio-distal width of the gingival wall should be used with hand pressure to drive the gold snugly against the gingival wall and into the gingivo-lingual and gingivo-buccal angles. There should be very little manipulation of this non-cohesive mass of gold, and no attempt made at perfect condensation till later in the operation. The aim should be to force the gold against the walls of the cavity at several points with strong, vigorous hand pressure. The manner of applying this pressure is of some importance, relative to the effectiveness of the work. The plugger should be given a rocking motion, the end of the handle describing the short arc of a circle with a quick wrist movement of the operator. This has two objects—it carries the gold ahead of the plugger point into every possible irregularity of the cavity, and it leaves the gold firmly seated in the cavity so that it will not be withdrawn when the plugger is lifted away, as is so frequently the case where a straight thrust is used. The rocking of the plugger forces the gold laterally away from the sides of the shank and leaves the plugger entirely disengaged.

The object of having a broad-ended plugger is to avoid penetrating the gold and chopping it up, thus destroying its integrity and interfering with its condensation. The broad plugger carries the mass ahead of it and does not puncture it. The reason that too much manipulation of the gold should be avoided is that it also has a tendency to disintegrate the gold, and it leaves a surface to the non-cohesive gold unsuitable for the attachment of fresh gold to it. One of the reasons why more non-cohesive gold has not been used in the past in these fillings is because of the difficulty operators have had in making cohesive gold adhere to it, and this is often brought about by over-manipulation of the non-cohesive gold. The surface should be left with uncondensed areas into which the cohesive gold may be wedged and the mass locked together by an interlacing of the layers of the two forms of gold.



If this is done there will be no difficulty in attaching the first pieces of cohesive gold and no subsequent separation of the mass at this point.

The amount of non-cohesive gold that shall be used in the gingival portion of these cavities, must be determined by the requirements of the case. If the proximal portion of the cavity is not very deep either gingivally or axially so that great strength to given bulk is required of the filling, the first rope of non-cohesive gold lying along the gingival wall is usually sufficient, the major portion of the filling being completed with cohesive gold, but if the cavity is quite extensive and the filling has considerable mass, a larger relative portion of non-cohesive gold may be used. Whenever it is deemed desirable to use more than the one layer of non-cohesive gold, the first layer should be condensed more thoroughly than has been indicated, by strong hand pressure or even by a few heavy blows of the mallet, and the next rope used should be of sufficient size to reach from the buccal to the lingual wall and remain locked between them. The whole philosophy of successfully managing non-cohesive gold is on the principle of wedging, and unless a sufficient mass is used to accomplish this purpose there will be an invariable curling up of the ends of the rope and a general lack of security.

Where cylinders of non-cohesive gold are used instead of ropes, they may be made by accurately folding non-cohesive foil into ribbons of varying widths and lengths according to the size of cylinders required. These ribbons are then wound on a clean nerve broach to make cylinders. The method of starting with cylinders is to take one somewhat longer than the mesio-distal width of the gingival wall and place it in the gingivo-lingual angle of the cavity with one end looking against the axial wall and the other out into the interproximal space across the gingival enamel margin. This cylinder is wedged into the gingivo-lingual angle and another cylinder placed in the same way in the gingivo-buccal angle. A third one is then used as a keystone between these two and the entire mass is wedged toward the gingival wall between the buccal and lingual walls.

Whichever method has been used, whether ropes or cylinders, the case now presents with the gingival wall covered with a layer of non-cohesive gold, and the next step in the filling is to begin the use of cohesive gold. A well annealed cylinder of sufficient width so that when laid upon its side it will reach well across the gingival wall mesio-distally should be carried to the gingivo-axial angle with its ends looking buccally and lingually, and this should be wedged by hand pressure into the structure of the non-cohesive gold in the direction of the angle. After it is thoroughly incorporated into the mass another cylinder should be laid a little further along toward the buccal wall in the same way, and this is continued until the cohesive gold reaches to the buccal wall and

is locked between this and the lingual wall. The entire mass should then be thoroughly malleted to place with heavy mallet force, using the cohesive layer as a medium through which to gain complete condensation of the non-cohesive gold lying under it. The case is now fairly started with a cushion of non-cohesive gold covering the gingival wall and protecting the gingival enamel margin, while a cohesive layer lies over it, against which to build the succeeding pieces of gold. The filling should then be continued along this line until the floor of the occlusal step is reached.

The point where the proximal portion of the filling joins the occlusal portion is important, in view of the stress which usually falls upon this region, and also because great strength is needed here to securely lock the filling into the cavity. To this end the cylinders should be so placed as to gain the greatest possible strength to given bulk, and this may be done by laying them on with their ends looking mesially and distally in such a way that the layers of foil constituting the cylinder shall be continuous from the proximal portion of the filling over on to the step portion. The first cylinder should be condensed solidly on the gold already in place and the free end which laps over into the step should be driven well into the angles between the floor of the step and its surrounding walls. The next cylinder should be carried a little further along in the step, but still lapping the condensed gold, and this should be continued until the termination of the step is reached. In this way the filling is locked together in the strongest possible manner, and with the least danger of air spaces being left in the substance of the filling. As the filling is nearing completion the aim should be to maintain an even surface and the cylinders should be laid flat on their sides so as to receive the full mallet impact throughout their entire structure.

Two points in particular need mention in connection with the building of these fillings—the enamel margins outlining the proximal portion of the cavity, and the contact point on the proximal surface of the filling. The gold should be well lapped over the enamel as the filling is being built up so that when completed there shall be a slight excess of gold covering the entire outline. This should then be thoroughly condensed over the margins with a foot plugger or a long obtuse-angle and smooth-faced condensing instrument. In those positions where the mallet impact cannot reach, a burnisher should be used to condense the gold and force it into the most intimate contact with the enamel margins. In burnishing, as well as in malleting, the impact should be begun in the central portions of the fillings and carried towards and over the margins. In this way the enamel margins are perfectly protected with gold and the cavity so sealed that there is no danger of subsequent leakage.

The contact point on all proximal fillings is an important consideration, and in view of the friction which invariably comes



upon it by contact with the proximating tooth it should be made as hard as possible. The individual movement of the teeth in the arch causes such a rubbing together of the contact points that frequently we find perceptible facets worn into the enamel at these points, and if our fillings are to stand up against this kind of wear and remain well rounded, as they should be, we cannot make them too dense. The hardness of gold can be materially increased, even after condensation is complete by repeated blows of the mallet, and this is particularly true of the small steel mallet. A contact point should accordingly receive more than the ordinary amount of malleting, and in this connection it may be stated that if for no other reason than this a matrix is indicated in filling these cavities when they occur on the distal surfaces of the teeth. With a thin matrix lying between the filling and the proximating tooth, the gold may be solidly driven against the contact point of this tooth without injury to the enamel on account of the protection afforded it by the matrix, and when the filling has been properly contoured and hardened and the matrix removed, the gold will be found in perfect contact with the proximating tooth, and with very little finishing necessary to make a good surface.

The method of finishing these fillings is important. The greatest care must be exercised not to cut away the contact point and thus destroy the contour that has been built up. If much excess of gold has been condensed over the margins it should be trimmed away with narrow files or sharp sickle shaped trimmers, but if the contour of the tooth has been accurately followed in building the gold there is little trimming necessary. To dress down and polish the gingival portion of the filling without cutting away the contact point, a narrow finishing strip should be inserted into the interproximal space from the buccal aspect and the filling finished with this—beginning with a moderately coarse strip to cut the gold rapidly, and finishing with a fine one to polish it. The reason for introducing the strip from the buccal aspect is because the gold is so tight against the enamel at the contact-point that it cannot be forced between the teeth from the occlusal aspect. The gingival portion of the filling now being finished, a separator may be adjusted to the teeth and a slight space gained to admit of slipping a very thin strip past the contact points. This strip should be of fine grit and rather wide, the object being to merely smooth and round the gold at the contact point, rather than to cut it away. When the gold is thus polished and the separator removed it will be found that the teeth will spring back to place, leaving a small rounded contact between filling and enamel.

The finishing of the occlusal portion of the filling is too self-evident to require consideration at this time, particularly in view of the fact that the paper is already much too long. (For discussion, see page 29.)



## PAPERS ON THE NATIONALIZATION OF THE DENTAL PROFESSION IN CANADA.

BY F. A. STEVENSON, D.D.S., MONTREAL.

By this is meant a standard of efficiency which would be acceptable to all the incorporated dental bodies of the Dominion. There are several ways in which such a standard may be attained. In order to keep within the time limit I will take it for granted that a national standard is desirable, and will at once proceed to outline a plan which it seems to me would cause the least disturbance of existing conditions.

1st. That the dental associations should amend, if necessary, their respective acts, so as to give them the power to grant a provincial license to those holding a Dominion diploma.

2nd. That the Dominion Dental Council be composed of one representative from each Provincial Examining Board or College.

3rd. That the examinations for the Dominion diploma shall be held simultaneously throughout the Dominion at such time and places as the council may decide; the examinations to be held in the presence of the local member of the council, and at least two of the Provincial Examining Boards.

4th. The course of study to consist of four sessions of nine months each.

5th. The matriculation to be the degree of B.A. from any British or Canadian university; candidates being cautioned that only men of mechanical skill should enter upon the course.

6th. A minimum number of practical operations to be certified to by the college authorities before a candidate may enter the final examination.

7th. The practical examination to be equal to the written examination in value.

8th. An average of 75 per cent. on the whole examination, and not less than 50 per cent. in any one subject to be necessary to pass.

Finances.—Funds would be derived from fees charged for both primary and final examinations, and from diploma fee. Should the funds derived from these sources be insufficient, the Provincial Associations represented on the Dominion Dental Council shall be assessed equally.

By the above plan any of the Provinces might withdraw from the council if they were dissatisfied with the result. At any future time, if it seemed desirable, the council could be incorporated at Ottawa.

It is important that a minimum number of practical operations should be certified to by the college from which the candi-



date comes before he be allowed to enter the examination. The number of operations successfully performed should be large enough to insure something more than a theoretical knowledge of how to proceed.

The practical examination is of great importance. It should include all the ordinary operations which a dentist is expected to perform, and the candidate should show himself thoroughly conversant with every step of any given operation. Mechanical ability is absolutely indispensable in our profession, and the examiners should unhesitatingly reject men who showed lack of ability in this direction.

The dental colleges and infirmaries throughout the Dominion would consult the council with regard to the required course. The council would name the text-books and outline the scope of the examination. It would also draw up a code of ethics to which each candidate would have to subscribe before receiving his diploma.

There are, of course, many details which cannot be discussed in a ten minutes' paper; one of these is the feasibility of holding simultaneous examinations at great distances, but the council could be guided to some extent by other bodies who succeed in holding them. The course of instruction could be arranged as follows:

First year.—Anatomy, chemistry (including tests for poisons and analysis of urine), physiology, materia medica, embryology, histology, hygiene. Second year.—A specially prepared course to give the dental student a thorough grounding in general medicine and surgery, including a general view of the medical and surgical diseases, principles of diagnosis and treatment, attendance at hospital clinics and operations, etc. Third and fourth years to be wholly devoted to practical and theoretical dentistry.

A man who has diligently followed such a course as above indicated would feel himself well equipped for his life's work and would, if blessed with average ability, be a credit to his profession, no matter whether he decided to practise in Quebec or British Columbia.

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BY J. B. WILLMOTT, D.D.S., M.D.S., TORONTO.

*Mr. President and Gentlemen*,—So much has already been published, and so much has been presented to-day, in favor of an "all-Canada" qualification for the practice of dentistry in Canada that I shall not touch that aspect of the question, but confine myself to a discussion of the ways and means of accomplishing it.

In discussing so important a subject as that under consideration it is desirable that we all mean the same thing when we use such phrases as "nationalization of dentistry," "Dominion qualification for dentists," "Dominion dental registration," etc. I



think it quite possible that there is some confusion just here. What I mean by these terms is not the making it possible for a dentist in Canada to obtain a certain certificate of qualification, put it in his pocket for easy reference, and peddle dentistry from Halifax to Victoria under its protection. Such nationalization of dentistry is not desirable, nor would I willingly assist in its accomplishment.

What does appear to me to be desirable is the possibility of obtaining a certificate of qualification which, while in itself not a legal qualification for practice anywhere in the Dominion, would entitle the holder to registration and license in any, or every, Province, and to all the rights and privileges of dentists in that Province, and also subject to all the provisions of the local law respecting dentistry. To accomplish this object the first step would seem to be the organization of some central authority, call it the "Dental Council of Canada" if you please, whose certificates would be accepted for registration by the Provincial Dental Corporations, constituted under the statutes in force in the several Provinces. The constitution of the Dominion places considerable difficulties in the way of organizing such a council. By the British North America Act education, general and professional, was placed under the jurisdiction of the Provincial Legislatures. These have all enacted laws governing the practice of dentistry. These laws cannot be over-ridden or superseded by a Dominion law. A Dominion statute relating to dentistry could only become effective by the concurrence of the corporate bodies constituted under the provincial laws, and in several cases only by action of the local Legislatures. In effect, therefore, any provision for a Dominion qualification for the practice of dentistry must in any case depend upon the mutual concurrence of the several Boards of Examiners now in existence by virtue of provincial legislation. This being the case, the simplest method of effecting our purpose will be for the several Boards to act in concert in constituting a "Dental Council for Canada," whose certificates of qualification they would agree to accept. The main duty of such representative council would be to make arrangements whereby those desiring to do so could obtain such a certificate, which, on payment of the prescribed fee, would entitle the holder to registration and license to practise dentistry, without further examination in any, or every, Province. In the Provinces of British Columbia, Quebec and New Brunswick, as I read their dental laws, amendments would have to be made by the Legislatures before the Boards could issue licenses without examining the candidates.

Probably there would be little difficulty in obtaining such amendments, especially as in all the Legislatures similar amendments will most likely be asked for by the Medical Councils. In the other Provinces and in the Territories the law as it at present



exists, can be made available for the acceptance of the proposed qualification. The great advantages of the method suggested, compared with the effort to obtain Dominion legislation, is in its simplicity, the comparative promptness with which it can be accomplished, if accomplished at all, its economy, and perhaps better than all, the facility with which the compact, in any of its features, could be amended if experience should show the necessity for doing so. When we have accomplished all that can be done by mutual co-operation, and have demonstrated by experience the feasibility and usefulness of a Dominion qualification, it is quite possible that it will be desirable to give permanence and prestige to the "council" by securing legislation similar to that recently obtained by the medical profession. A great difficulty in securing such legislation, and which did not confront our medical friends, is to be found in the fact that there is not either in the House of Commons or in the Senate a single member who has any personal interest in the profession of dentistry. It is very doubtful if, in either House, a member could be found who could be interested sufficiently to make the prolonged effort which would be necessary to overcome the natural inertia of Parliament towards a subject which does not necessarily come under its jurisdiction, and especially until the recent experiment in medical legislation has shown its usefulness.

"The Dental Council of Canada"; what should be the composition of such a council? 1st. It should be comparatively small for purposes of economy. 2nd. It should be territorially representative. 3rd. It should be educationally representative. A sufficiently large council might be made up of one representative from each Province and one from the Territories, elected either by the whole corporate body or by the Board of Examiners as might be deemed best, and one from each dental school or college. This would make a council of ten. At the meagre remuneration paid the members of the Board of Directors of the Royal College of Dental Surgeons, the cost of a meeting of council, even if held in connection with that of the Canadian Dental Association so that low railway rates could be obtained, would cost proximately \$800. A smaller council would be preferable and biennial meetings would be desirable. The question of expense will be a very serious one. The medical profession numbers nearly five times as many as do the dentists; naturally, they will have about five times as many applicants for the wider qualification, and yet the promoter of the Dominion Medical Council, in his speech in the House of Commons, intimated that it would be necessary to receive a very considerable grant from the public treasury to enable the council to meet its expenses. This source of income will not, of course, be open to us. The expense will consist of fees to the examiners, other expenses connected with the examinations, the expense of holding the meeting of council, and a small salary to the Secretary-Treasurer. These will easily amount

to \$1,500 annually, and probably a good deal more. The only source of income will be from applicants for examination, and these may not be numerous. In assessing fees against students it must be remembered that a registration fee will also have to be paid before entering upon practice. When students have completed a four years' course they are not usually rich.

The immediate duty of the council would be to devise some equitable scheme by which certificates of qualification may be obtained by those holding licenses in all the Provinces at a date when the arrangement would go into effect, and the elaboration of a curriculum, on compliance with which those entering upon the study of dentistry would obtain such certificate. As to the first class, in recent years in all the Provinces, the requirements for license have been fairly severe. In all the Provinces the inauguration of the dental law recognized the rights of those then in practice, though the qualifications of some of these were very low. Again, in all the Provinces there are practitioners whose characters are hardly up to standard, some who are not models of sobriety, and others whose practice has not been conducted in harmony with recognized professional ethics. These men have all acquired rights in their own Province, but it would be unfair to impose them upon the other Provinces. These Dominion certificates may be recognized outside of Canada and they should at least stand for honorable, efficient, modern dentistry. It would be equitable that certificates of qualification be granted to such practitioners as had presented to the council acceptable certificates of sobriety, good moral character, and of having conducted their practice in accordance with the recognized code of ethics of the profession, and had passed a satisfactory examination in dental pathology, dental therapeutics, practical dentistry (operative and prosthetic, including orthodontia), crown and bridge-work and porcelain work.

As to the curriculum for students, it should require as a preliminary education matriculation in the Faculty of Arts of a good university, or its full equivalent, at least three and one-half years' continuous pupilage, not being engaged in any other business, attendance on three courses, and for those commencing after October 20th, 1902 four courses of instruction in a recognized dental school and the passing of a satisfactory examination in all the subjects of study. The subjects which should constitute the course in a modern dental school is as well set forth in the course proposed by the Royal College of Dental Surgeons for its four-year course, as can be found elsewhere. It is considerably wider than that submitted to the Dental Faculties Association at the last meeting in July, 1902. The question as to who should be admitted to what may be called the students' qualifying examination is of considerable importance. Students from outside Canada should not be excluded, but they should conform exactly to the same requirements as those who take their course



in Canada. To illustrate, a student taking his course in the Royal College of Dental Surgeons is required to obtain University Arts Matriculation before he begins his professional course. He is further required to spend forty-three calendar months in continuous study of dentistry, and, of course, during this period attend the required courses at college. Another student, say from Ottawa, has spent two years at a high school, two years short of Arts Matriculation, but this will admit him to the dental schools in, say Baltimore or Philadelphia, one of which he attends, and in each of three years spends seven months, twenty-one months in all devoted to the study of dentistry. During his College course he completes his Arts Matriculation, which he can do, not being engaged in dentistry for five months each year in the intervals between courses of lectures. At the completion of his dental course he desires to obtain a Dominion qualification, he should not be admitted to examination until he had spent the same time subsequent to matriculation as the Ontario student is required to do.

The members of the proposed council should not examine, they should be selected for their fitness as councillors, should be men of experience, of good business ability, "men of affairs," and with some practice in the transaction of public business. The examiners should be chosen by the council and be selected for their fitness for that work.

The examination for practitioners would probably have to be held at several points, that for students should be centralized where the best facilities for practical work can be obtained. The examiners would probably be widely scattered and the details of the examination would have to be worked out somewhat on the lines of the Ontario Medical Council, which is probably similar to that of other Provinces.

All certificates granted by the council should be issued and accepted, subject to the condition that the certificate would be liable to cancellation should the holder become habitually intemperate, or lead an immoral life, or violate the generally accepted code of ethics of the profession, or be convicted in the courts of a serious, indictable offence. In some Provinces the law provides for the discipline of licentiates, in others it does not, hence the necessity for a provision of this character.

I am in hearty accord with the arguments which have been adduced in favor of a Canadian qualification for the practice of dentistry. There seems to be a very strong feeling in favor of it among the dentists of the Dominion. Possibly some of the Provinces may not be just ready, but this need not prevent the others from entering into the arrangement with the hope that at an early date all will fall into line. In a few years the Provincial Boards would probably abandon their examination and adopt the Canadian certificate as the only qualification for entering upon practice.

## CARE OF CHILDREN'S TEMPORARY AND PERMANENT TEETH.

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BY T. R. PATERSON, D.D.S., ALMONTE, ONT.

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Read before the Eastern Ontario Dental Association, July 10th, 1902.

When I received the notice from your worthy Secretary that my name had been suggested by the Programme Committee I was somewhat surprised, as there are so many more experienced and thus better qualified members to take up the work. In answer to your Secretary I said that I would do all I could to get a substitute for office work and would write him again in a few days. In the meantime I received a note saying that my name had been placed on the programme.

This year in particular, lack of time would scarcely permit me to do justice to such an important subject since about two months ago I had the inconvenience of losing the experienced assistant whom I have had for the past three years and of taking on a fresh one. However, if I can throw out a few suggestions to help the younger members of the profession and call forth discussion on the subject I will have attained my end.

In the first place our object, *i.e.*, the care of children's temporary and permanent teeth, may be accomplished by two methods, *viz.*, by the prophylactic treatment and by the therapeutical treatment. By the former we mean those measures which are instituted for the purpose of removing the exciting causes of the disease and as far as possible preventing the operation of the predisposing factors. By the latter we mean measures which are instituted to arrest the progress of the affection and to remedy the defects and injuries caused by it. Of these I consider the former, or prophylactic treatment, by far the most important, and think it should receive our most earnest attention—as the saying goes, “an ounce of prevention is better than a pound of cure.” you will all agree with me that it is easier to prevent than to cure disease, and till the parents are led to see the importance of preventive measures the dental profession has not realized its ideal.

I may say that prophylactic precautions thus far have been greatly or altogether neglected. It is the duty of the dentist to impress upon his patients the importance of cleanliness of the mouth and teeth—the greatest of all measures for the preservation of the teeth.

I might mention many reasons in support of the prophylactic treatment, but as I do not wish to take up too much of your time I will confine myself to a few in particular. We all know that in order to have a healthy body every muscle and organ must do its



share of the work, and to do this work without friction each organ must be in its normal or healthy state. If any part gets out of order and causes pain when used it will soon become weak for lack of exercise, hence the importance of not letting them get out of order. This rule applies to dental organs as well as any other organs of the body.

The taking of preventive measures, however, is not sufficient. We must take the aggressive and impress upon the parents the importance of having their children use their teeth, judiciously, of course, that they may become strong and well developed, and as a means to this end, even in early life many of the lotions and soft foodstuffs might be done away with and a food rich in mineral wealth and requiring work to masticate substituted. This would serve the double purpose of giving the teeth more work and supplying the system with more of the constituents which go to build up tooth-structure. Since the liability of teeth to decay depends largely on the original organization and on the way in which it is nourished in early life, in order to obtain the best results we would require to begin with the mother.\* Her diet should be such as would have a tendency to supply the desired amount of mineral for nourishing the dental organs. Most of the mineral necessary is found in the grains, particularly the wheat, that is, if it has not been removed by the fine bolting of our day, which some assert, takes the best part of the germ away. Some may say that if we take too much pains in instituting preventive measures the dentist would come to grief, as the amount of work would be diminished. Perhaps it would, but the work would be of a better class. Fewer dentures would be worn, and as for fees, he might resort as his medical contemporary does, to charging for his advice if merely consulted. However, there seems to be no immediate danger from that direction.

Some patients, I find, try to estimate in dollars and cents the difference between having their own teeth saved (obdurate) and having them replaced by a denture. They say it will cost as much to have them filled, without thinking of the difference in convenience and comfort. One reason for this might be, they have not sufficient confidence in filling. However, I am satisfied that as the standard of the profession rises they will leave the matter more in our hands.

The importance of knowing the time of eruption of the different teeth in the mouth is another matter which should be impressed on the parents. Even in my short experience I have seen a great many mistakes on the part of parents in either allowing the temporary tooth to be lost too soon or allowing it to remain too long. You are all aware of what follows.

I have filled teeth successfully for children two to two and one-

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\* Victor Hugo says if you want to reform a man begin with his grandfather.

half years old without giving the child any reason to dread a similar operation in the future. In one case, with a child less than three years old, I made an unsuccessful attempt to remove the sequestrum from a suppurating wound, from which the child, a few months before, had had one central incisor broken. I hurt the child and could do no more. Perhaps it would be better practice to have had an M.D. administer chloroform.

I have spoken to parents more frequently regarding the six-year-old molar than concerning any other tooth in the mouth. This is generally the tooth that forces the negligent to consult the dentist. None of the temporary teeth seem to cause the intense pain of the sturdy six-year-old molar, and, strange to say, the majority of mothers will tell you that she brought the child to have the tooth out as it is only a temporary, and frequently extraction is the only remedy. Sometimes advice will suffice to induce the parent to have the others attended to if the child can be persuaded to return after his first unfortunate experience. Operations of this nature on children are, I believe, not only responsible for much of the neglect and delay in consulting the dentist, which cause increased difficulties when he is called on, but actually prevent many from consulting him at all.

A great many children lose one six-year-old molar.

At about the age of eleven or twelve, I have extracted successfully the six-year-old molar by the administration of gas, and the little patient will tell her playmates that she never felt it. As a rule, however, I use the local anesthetic for the purpose. I do not know of any better method of avoiding such operations and of putting matters right than for each individual dentist to use his influence to the best advantage among his own patients, and since, of course, all dentists are conscientious, we look for a better state of affairs in the future.

Let us advise the parents to see that their children use their teeth that they may become well nourished and well developed. Let us advise an increased consumption of foods which are rich in mineral wealth and requiring mastication and a limited consumption of foods and lotions having a tendency to acid-formation, especially lactic. Let us urge on parents not only the importance of adopting a regular and systematic cleaning of the mouth and teeth of their children in order that all fermentable substances and bacteria may be removed, but also the advisability of a systematic application of antiseptics after cleaning to reduce the destructive germs in the mouth. As for a dentifrice, Miller says that a powder, though effectual in brightening the exposed surfaces of the teeth, has a tendency to clog the interstices, and recommends a soap for the purpose.

Tomes says that in many respects soaps are to be preferred to powders. Marshall says, "All good tooth powders and pastes should have a sufficient amount of the best Castile soap to gain



the advantage of the dissolving action on fatty substances. Thus far we have been dealing solely with prophylactic measures. These having failed in whole or in part to preserve the natural tooth we resort to the treatment of the affected part and obduration or filling. It is surprising how well we can, with the aid of modern appliances and skill, restore the original form and contour of a tooth and thus enable it to serve its purpose either of beauty or utility. Of course, we have more confidence in the results when we are consulted in the early stages of the disease, but our mission does not end there. For some patients our work is not appreciated even when we do them the favor of restoring to usefulness an almost hopelessly broken down tooth.

Our fees are altogether too small and cannot come up to the standard so long as some in the profession continue to send out posters with reduced prices affixed, their motto being quantity, not quality. However well we may be able to match and replace a tooth that has been lost, in my opinion it is seldom equal to its predecessor, either from an esthetic or from a serviceable point of view.

A few suggestions regarding filling children's teeth, as my paper is already too long. Just as in school, short, lively recitations please the children; so in the dental office the operation should not be continued too long and the interest of the child should be kept up, if possible, throughout. As soon as he appears to tire, the work should, after the tooth has been dressed with an antiseptic and temporary stopping, be deferred until another sitting. Our future to a great extent depends on how we use the children.

Never deceive a child. If it is to hurt a little rather encourage him and prepare him for what is to happen. Some children cannot trust their parents. Do not inflict pain if it can be avoided or warded off by the use of some harmless antiseptic, and, if necessary, have another sitting. Rather than run the risk of exposing a nerve and causing severe pain, I believe it is better practice to take off the superficial layer of diseased denture, approaching as near as possible to the healthy structure, then sterilize the remainder with antiseptic capping. If doubtful fill temporarily for a week, then repeat the dressing and fill permanently. As to the cavity, be particular to have healthy margins (as strong as the case allows) and have the cavity absolutely dry before the insertion of the filling.

Prophylactic and therapeutical treatment being of no avail, extract; but in my opinion unless the teeth are predisposed to decay, and seem to resist all efforts, they should be saved, especially till the patient reaches maturity.

The dentist of the present day is seldom, if ever, designated as he once was, "The Tooth-puller," and I think that all of us

as dentists resent the term in thought if not in word. Circumstances, of course, alter cases. The patient's wish must be complied with in the end or we lose; thought we may advise we cannot over-rule their opinion.

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## IDENTIFICATION OF THE DEAD BY THE TEETH.

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BY EUDORE DUBEAU, L.D.S., D.D.S., MONTREAL, QUE.

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Read before the Maritime Dental Association, Charlottetown, July 9th, 1902.

Before beginning the reading of this essay, I beg your indulgence for my bad pronunciation, English not being my language, and also for mistakes in the construction of sentences. I also wish to state that, owing to the time taken up concerning the organization of the Canadian Dental Association meeting at Montreal in September, I have been unable to prepare this paper as fully and carefully as I would have desired.

When attending the International Dental Congress, at Paris, in 1900, I became acquainted with Dr. Amoedo, Professor at the Ecole Odontotechnique, who wrote a splendid book on "Dentistry in Legal Medicine," and on discussing with him the question of teeth for the purpose of identification, I was so struck with their importance, that when asked by your Secretary to do something for your meeting, I thought an essay on this subject would interest you.

Tardieu, at the beginning of his book on "Identification," says: "The examination of the skeleton in the researches to establish identity, constitutes one of the most delicate questions that legal medicine has to deal with."

In fact, identification has such a social and civil importance that nothing should be neglected to establish it surely, and to that end legal medicine must seek assistance amongst allied sciences, and amongst these dentistry is certainly one of the most, if not the most, important.

Until now, legal medicine has certainly not given enough attention to the importance of teeth for identification, and in many cases it is the only reliable medium. Several cases that will be mentioned hereafter will prove this statement. If you look into the books on legal medicine, you will find teeth mentioned as means of establishing identity, but without attaching to them much importance. This is an injustice, and it is our duty to protect and educate the medical men as well as the public on the subject.

With our appointment books containing diagrams explaining all the details of the work done, it is usually easy for the dentist to recognize his former patient. Of course, I do not pretend that our services ought to be required, and would prove successful in



every case, but the fact that they have been used with success in many cases justifies us in asking that our science should be put to the test when necessary, and I think that the Provincial Boards should insist upon their respective Legislatures having a dentist appointed in cities and counties, to act as dental experts to assist the coroner and the medico-legal expert.

Though this essay is entitled, "Identification of the Dead," the examination of the teeth may also be used for recognition of the living, as, for example, in the case of criminals and fugitives. I believe that in these cases an examination of the mouth by an expert dentist would furnish facts that would help to recognize them better than any other physical peculiarities, which are susceptible of change.

For insurance companies, the question of identification is of such great importance that in the near future they will require an examination of the teeth by an expert dentist, which examination in connection with the general examination, will constitute a factum which, in certain circumstances, will be the only means of recognition. The following are a few cases where the teeth were the only possible means of establishing identity:

In the Hillman case, which remained undecided in courts of justice during fifteen years in the United States, a model of the teeth showed that the dentition of the victim was perfect, and those of the true Hillman being known as imperfect and irregular, the case was decided on that point. In this case the body was so much mutilated that identification by any other means was impossible, and if that model of the teeth had been shown at once, the question would have been decided immediately. This case was a question of extracting money from insurance companies.

In the case of Goss-Underzook—this was in 1872, in Baltimore—Goss, a dentist, had put fire to his house, where he had left his colored servant under the influence of a narcotic; he left the town the same day, with the understanding that his wife and brother-in-law, Underzook, would claim the insurance money (\$25,000) under the pretention that the dead body found in the house was Goss himself. The insurance companies refused to pay, and notwithstanding the fact that they proved by dentists that Goss had all his teeth, and the corpse found had none, the court rendered judgment in favor of Mrs. Goss. The companies appealed, and during the interval Goss was found, thereby proving that the dental expert's contention was right.

In the case of the "charity-bazaar" destroyed by fire in 1897, in Paris, where many notables perished, in twenty-seven cases the teeth were the only means of establishing identity, and amongst those so identified were the Duchesse d'Alençon, the Countess of Villeneuve, the Vicountess of Beauchamp, etc.

In the case of the Imperial Prince, son of Napoleon III., killed by the Zulus in Natal in 1879, his body was so mutilated that he could not be recognized; but his dentist, Dr. Evans, of Paris, proved without doubt his identity.

In the case of Marquis de Mores, killed by the Touaregs in Africa in 1896, whose body was found in a state of advanced putrefaction, his dentist, Dr. Davenport, of Paris, had no difficulty in identifying him.

I could mention many more cases of dental expertness, but this is enough to show its utility in such cases. And to conclude, let us hope that in the future we will be called oftener to aid justice, for identification has such a humanitarian and social importance that legal medicine should utilize the means furnished it to that end by dentistry.

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## HEMORRHAGE AFTER TOOTH EXTRACTION.

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BY C. F. LENNOX, TORONTO, CAN.

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Read before the Toronto Dental Society, November, 1902.

In approaching this subject of hemorrhage after tooth extraction, I feel sorry that it could not have been allotted to some one of greater experience than myself; nevertheless, I am very happy to say anything that I may be able upon it.

This liability to hemorrhage, depending as it does on some constitutional peculiarity, should, I think, be treated constitutionally as a precautionary measure, provided you have any reason to suspect its presence: for instance, hemorrhage having occurred with some other member of the same family.

The drugs used are digitalis, aconite, ipecac, or ergot, of which ergot is most commonly employed. These remedies act by slowing the heart's action, and also by contracting the walls of the blood vessels.

In my own practice, being upon the homeopathic side of the fence, I use whatever remedies I think covers the symptoms; and as prescribing for cases of this kind does not require a very extended knowledge, I can do so with reasonable prospects of success.

As an instance of what may be done in this line, I can cite two cases, one of a young woman, age about twenty-five, who came to me from outside the city; she had a large number of teeth to extract, all the upper fourteen, I think. She came in one afternoon about four o'clock to make an engagement for the next morning. After I had seen what required to be done, she told me that her doctor at home would not extract them, as she bled so profusely he was afraid to do the work. She said that whenever she had a tooth extracted she nearly bled to death before the hemorrhage could be stopped. Well, I said, I have no more desire to have you bleed to death on my hands than has your physician, and I am afraid I will have to decline to do the work. However, as she insisted that it must be done by some-



body, and that I was the somebody she preferred, I gave her phosphorus as the remedy she required, telling her to return the next morning, and I would then answer definitely whether I would take the risk or not. In the meantime I saw my physician, telling him of the case and the remedy I had employed, and asking him if he thought I could take the risk, and he said he thought I could. Next day I extracted the teeth, giving gas for the purpose. The young woman was a beautiful gas patient, and everything went swimmingly; the bleeding, although free, was not excessive, and no local treatment was resorted to, but the phosphorus was continued hourly for some time.

The second case was that of a man who came in one morning. He said, "I've got a couple of teeth here that are bothering me dreadfully; do you think you can take them out?" "Well," I said, "as far as that is concerned, I can take out all the teeth you have got." "Oh, but," said he, "every time I have a tooth out I nearly bleed to death, and I have to get a doctor to stop it; then my face swells horribly, and turns black and blue, and I nearly get blood-poisoning from it." I promised I would fix him all right; gave him phosphorus also, extracted the teeth, and promised to run in and see how he was; however, I did not go in for three or four days, and he then said he had never had a tooth act that way in his life before; the bleeding stopped almost immediately, and his mouth healed up without any of the usual soreness.

Now, of course, these may just have happened so, but I am willing to blame the remedy for the results.

In *Harris' Dental Surgery*, a case is reported of a man who, after having a tooth extracted, did not bleed profusely, but hemorrhage recurred the following night. It was treated by packing pledgets of cotton saturated with agaricic acid, and the bleeding ceased, but recurred the following day. The physician then cleared the clots of blood from the mouth, and found that the bleeding no longer came from the point of extraction, but was oozing in drops all over the mucous surfaces. Astringents were given internally, and astringent mouth washes used without success, and the patient died the ninth day after extraction. This case would be exactly covered by crotalus, and although I hardly think the patient would be still living, as the case occurred in 1775, still I don't believe he would have died from that hemorrhage.

Unfortunately, patients will rarely enlighten you even when they know themselves that they are subject to excessive bleeding; then local treatment has to be used, as well as the constitutional. As an instance of this, I can cite a case which occurred to my father, of a young lady, the sister of a physician, who came to him and had a large number of teeth extracted, although she had been expressly forbidden by her brother to do so.

She was an exceptionally healthy looking woman, and one you would hardly suspect to have trouble with; however, the

bleeding resisted all efforts to stop it (this was before I knew much of homeopathy), the mouth continued bleeding until the patient fainted from loss of blood, when it ceased of its own accord.

The agents most commonly used for the local treatment of hemorrhage are: Tannic acid, subsulphate of iron, alum, nitrate of silver, sulphuric acid, gallic acid, perchloride of iron, and latterly adrenalin chloride and the actual cautery. Of these, I have had good success with a perchloride of iron cotton, prepared for me by Chandler & Massey. Fortunately for myself, since getting adrenalin chloride I have not had a case of hemorrhage, so that of it I cannot speak from experience, but as with all other new drugs there seems to be a great diversity of opinion, some being wildly enthusiastic over it while others are almost the opposite, however they all agree that it is certainly an exceptionally powerful styptic, but there seems to be a tendency to recurrence of the hemorrhage where it is used, and the wounds are very slow in healing.

As to the local treatment, I prefer to pack the agent used into the socket or sockets on absorbent cotton, placing other cotton moistened so that it will pack tightly above that and pack it in with a blunt instrument, holding in place with the fingers, and staying right there until the bleeding has ceased. I have not had any success by packing the socket and taking an impression in plaster, as you do not get enough pressure, and using a cork and allowing the patient to bite against it, is of still less use, as they always ease up a bit on account of the pain.

Fortunately, even in extensive extractions, the hemorrhage usually proceeds from one or two sockets, which can be usually held by one person, but where the bleeding is more extensive it is well to pack the sockets, fill an impression cup with plaster, and take an impression when the plaster is setting, so that it takes a great deal of pressure to force the cup to place.

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## DON'TS IN CEMENT FILLING.

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BY A. J. HUSBAND, D.D.S.

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Read before the Toronto Dental Society, November, 1902.

Don't draw cement away from cervical edge of cavity.

Don't use steel spatula.

Don't use archite.

Don't think it necessary to use dam if Fellowship cement is used. It can be flooded immediately after insertion apparently without harm.

Don't neglect a thorough mixing.

Don't put accent on last syllable, but pronounce it "ce'ment."



## ARSENICAL POISONING.

BY G. S. MARTIN, D.D.S., TORONTO JUNCTION.

Read before the Toronto Dental Society, November, 1902.

I presume the Programme Committee, in assigning this subject, had in mind not the poisoning of pulps under fillings made of oxyphosphate of zinc, by the arsenic said to be found in most samples of zinc oxide, but to the destructive action of arsenious acid on soft tissues and alveolar process, when by any means it is allowed to leak from the cavity in which it has been inserted. Permit me to say in passing, however, that I believe that where pulps die under "cement" fillings, it is due to the irritating action of the phosphoric acid rather than to the arsenic, which may or may not exist in the powder.

With regard to the more serious question of arsenical poisoning due to the escape of devitalizing agents from cavity, the aphorism, "an ounce of prevention is worth a pound of cure," is most *a propos*. "An ounce of prevention is worth a waggon-load of cure" is better. In making an application to devitalize a pulp, where the cavity is approximal, too much care cannot be exercised.

One of the most common mistakes made is placing in the cavity an unnecessarily large quantity of the agent. With a pure drug and good access, the smallest particle possible to pick up and see is sufficient, if placed on the exact spot. It is good practice to place upon the gum tissue in the interproximal space a pellet of cotton dipped in chloro-percha; then, after placing the devitalizing agent in position, cover with another pellet also dipped in chloro-percha. This serves a double purpose: the chloroform acting as an obtundent, and the chloro-percha rendering the dressing practically impervious to moisture.

I read in a recent journal a recommendation of temporary stopping as a dressing over arsenical paste. I do not think anything is worse for the purpose than temporary stopping. It would be better to use dry cotton. Many depend on carbolic acid as a preventive of mischief, applying this agent to the gum in the interproximal space, and using it as a vehicle to moisten the treatment intended to carry the arsenious acid, on the theory that the arsenious acid will not pass the dead-line produced by the caustic properties of the carbolic acid on the soft tissues. The material used as a temporary filling should be easy of application, so that no pressure may be the result, as most of the pain in devitalizing is undoubtedly due to pressure. In shallow, saucer-shaped cavities, such as in lateral incisors, where it may not for some reason be thought advisable to use the cocaine-pressure method of devitalizing, the arsenious acid should be confined by means of oxyphosphate of zinc cement. After the dam is applied to the tooth, and cavity dried, the oxyphosphate

in a sticky condition should be carefully flowed over the devitalizing agent, and the dam retained until the filling is hard.

In this connection I wish to relate a personal experience from my own practice, some seven years ago. Wishing to devitalize the pulp in a superior lateral incisor, having a very shallow saucer-shaped cavity, for a young married woman, I applied the dam, and very carefully applied the agent, flowing over it sticky oxyphosphate of zinc cement. The patient was directed to return in twenty-four hours, but remained away seventy-two hours instead. On presenting, she complained of great tenderness of tooth and gums, and to my consternation I found the characteristic dark angry purple condition of gum extending from apex of root to cervical margin, and most marked at apex. I at once began vigorous treatment. The affected gum tissue was freely scarified and syringed with hot water and peroxide of hydrogen, then applications of tincture of iodine were made, followed by trichloroacetic acid. In spite of every effort, there speedily came a day when the patient removed the tooth with finger and thumb and brought it to me in her purse. We had "a bad quarter of an hour." She went to a city dentist who never belonged to a dental society. He told her he was a specialist in such troubles, and that I never did know much anyhow. So "she never came back." It is my fixed belief to this day that the devitalizing agent passed out through the apical opening, as sloughing was most marked at apex, and the apical opening in tooth was noticed to be abnormally large. I may have erred in placing too much of the drug in the cavity, but I particularly remembered the great care taken to seal cavity, and filling was still intact when patient returned.

Since then I have probably never applied arsenious acid or cobalt for the purpose of devitalizing a pulp without the memory of that unfortunate accident making me take a little extra care, and during the last seven years nothing of the kind has ever occurred in my practice.

Of course I know a fellow isn't supposed to tell such things "in meetin'," but as the small boy said in his essay on "Pins," "Pins have saved a great many lives by people not swallowing 'em," and if I can save any one present from trouble by relating this incident, I don't mind the pain of the confession. One advantage possessed by cobalt over arsenious acid is that you can always see it, and are surer of getting it properly placed in cavity before covering. There is a mistaken idea in the minds of some operators that cobalt is less dangerous than arsenious acid. Keep your eye on it. It will fool you if you don't.

Some time ago a young lady presented herself at the office for treatment. She had been under the care of a city dentist who had made an application of cobalt to a cavity in second superior bicuspids. It was covered with cotton and sandarac varnish, and an appointment made for the second day following. The patient was not warned of the necessity of returning not



later than the appointed time. The illness of her mother caused her to forget the return visit, and the patient came to me in *three weeks* with the treatment still in place, and a very serious state of affairs present. After removing treatment the affected soft tissues were cut and scraped away, using plenty of hot water and listerine. After a few days the process between the bicuspid loosened, and was removed. The cavity was dressed with aromatic sulphuric acid, then with listerine, and the bicuspid was saved, although with quite a depression between. After ten years of service since, the devitalized tooth came to me this last month, with an abscess, which so far seems to resist all treatment.

In these two cases, the most serious I have seen, I have outlined in brief my methods of treatment.

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### DON'TS IN AMALGAM FILLING.

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BY HAROLD CLARK, D.D.S., TORONTO.

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Read before the Toronto Dental Society, November, 1902.

Don't imagine that an amalgam filling can be as good as a good gold filling, and don't let your patient have any wrong impression about it. Thanks to Dr. G. V. Black, we have been able to improve the durability and efficiency of our amalgam fillings, but only in degree. They still draw or flow under the strain of mastication if the form and location of the cavity at all favors.

Don't neglect the use of rubber dam in amalgam filling. There are few fillings that wouldn't receive better manipulation with the dam rather than with the hurry of napkins and cotton rolls.

Don't fancy that an amalgam filling requires less care in the preparation of its cavity than a gold filling. A gold filling will protect a poorly-formed cavity better than amalgam.

Don't use the same mix of amalgam for the whole of a large cavity, or the filling will be softer on the surface than beneath, thus inducing a shrinkage that will destroy the adaptation of the filling to the cavity margins.

Don't try to remove the dam past a proximal amalgam filling without cutting the septum. The flaking away of part of the filling isn't the only danger. The amalgam will be drawn from the cervical cavity margin sufficient to admit moisture.

Don't draw a matrix away from a proximal amalgam filling in a cervico-occlusal direction. It also will draw the filling away from the cervical margin.

Don't make your amalgam filling to fit a fee, but try to collect a fee commensurate with an honest filling. If you have to take a lesser fee, the consciousness that you have endeavored to attain an ideal will be no small compensation.

## DON'TS IN GOLD FILLING.

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BY GEORGE GOW, D.D.S., TORONTO, CAN.

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Read before the Toronto Dental Society, November, 1902.

Don't expect to get true, durable margins in gold fillings where the enamel margin of the cavity has been improperly prepared and bevelled; and also do not mallet away from the margins, but always seek to work it in the general direction of the margins.

Don't proceed with the filling until you are positive that the portion of gold that covers the base and retention of the cavity at the starting-point are perfectly adapted.

Don't attempt to fill too sharp an angle with highly annealed gold, for the "balling" of the pellet and its harsh working will mislead you into thinking that you have perfectly filled the cavity.

Never attempt to work a piece of highly annealed gold that has refused to go properly into position after it has been once tried.

In the course of a filling, don't add the second piece of gold until the first has been properly condensed.

Don't forget, when malleting a tender tooth, to sustain it by means of an instrument held firmly on the gold, thus enabling you to secure proper condensation without undue pain to the patient, and especially is this important in finishing the building of the gold where the last piece must be well annealed, and carefully gone over with a small point.

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## CLINIC.

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BY DR. BELYEA, ST. JOHN, N.B.

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Read before the Maritime Dental Association, July 11th, 1902.

Dr. Belyea showed the desirability of preparing the margins of approximal cavities in such a way as to keep the point of contact with the neighboring tooth at some distance from such margins. This was accomplished in anterior teeth by cutting away the tooth and contouring the gold in medium or large cavities, and by trimming away the opposing surfaces that the contact might be near the incisive edge, and below the margin of the cavity in small cavities. In the posterior teeth the principle of "extension for prevention" was demonstrated, and in all cases where the margins extended to or near the gum margin it was shown that the margin of the cavities should be extended below the gums, and to cross the same at right angles for the purpose of making the relationship of the two margins (*i.e.*, the gum margin and the cavity margin) as small as possible.



The object of this course of procedure is to prevent the accumulation of the requisites of decay near the margins of fillings, which is the part most easily acted upon by these destructive influences.

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## ALVEOLAR ABSCESS.

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BY A. E. SAUTO, D.D.S., LONDON, ONT.

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Read before the London Dental Society, November 10th, 1902.

When asked by the president of our dental society to give a paper on this subject, I hesitated, feeling that as I had never attempted anything of the kind before, I would not be able to do the subject anything like justice, and would fail to place the different features and modes of treatment of this most troublesome disease in a presentable form before you, but now that I have undertaken the task, I hope you will be lenient and overlook all deficiencies. I trust that the discussion which follows will amply make up for what the paper lacks. The object of this paper is simply to place sufficient material before you to elicit a thorough discussion of all points in connection with this disease, and I have endeavored to collect as much subject matter as possible for that purpose.

The subject of alveolar abscess is one that is of vast interest, for it is a disease that is constantly—I might almost say daily—presented to us for alleviation and treatment. Too many of these cases are subjected to the forceps as a remedy, where a careful and persistent course of treatment would oftentimes have more beneficial results, the most important one of all being the retention of the tooth, which is in close proximity to the area of the abscess. Alveolar abscesses are those occurring within the alveolar walls, and are classified as acute and chronic. The acute abscess is the initial attack of this disease, which, when followed by repeated attacks in the same area, are termed chronic.

The term ulcer is often applied to this disease, but the two are entirely different. Quoting Dr. Barrett, "An ulcer has its origin invariably upon the epithelial surface and tends towards the interior, always proceeding from a bad to a worse condition, while an abscess has its commencement at a point beneath the surface, and in its course always tending towards a better condition."

It is claimed that the capping of exposed pulps is responsible for a great number of alveolar abscesses, and it is undoubtedly true. Many an exposed pulp is capped to save time and the trouble of devitalizing and further treatment, which from the existing conditions should have been devitalized in the first place.

The cases of alveolar abscess with which we most frequently come in contact are the result of the access of bacterial matter into the dead pulp of the tooth; this septic matter acts as an irritant on

the tissues at the apex of the root, setting up a violent inflammation resulting in the breaking down of the adjacent tissue and infection by pyogenic or pus-producing organisms, causing an accumulation of pus, which burrows its course through the tissues that are least resisting, and if not prevented by remedial treatment, will finally discharge on the surface. Consequent upon the accumulation of pus there is also a development of gases, which, together with the pus, exerts a great pressure on the surrounding tissues, causing intense pain, which varies according to the density of the tissues surrounding the disease. One of the reasons for our lack of success in the treatment of this disease, in the acute stages, is the fact that the patients present themselves usually three or four days after the first symptoms of the disease have exhibited, and the surrounding area therefor is in the worst possible condition to yield to palliative treatment. It is while the disease is at this stage that resort is made to the forceps, frequently at the urgent request of the patient. If the case is presented in the earliest stage, that it, when the tooth is slightly lifted in its socket with extreme soreness on occlusion, the attack may be averted altogether.

In the treatment of these cases, apply the rubber dam and drill opening into the pulp chamber in a direct line with the long axis of the tooth. The opening should be of sufficient size to allow of free and unobstructed access to the pulp chamber, and the openings to the root canals also enlarged. The contents of the canals should be thoroughly removed, great care being observed not to press any of the septic contents of the canals through the apical foramen of the tooth. The success or failure of our treatment is chiefly due to this precaution. The contents of the canals may be removed in many different ways, but a good method is to wrap a wisp of cotton on a broach, passing it carefully up and allowing the cotton to absorb as much as it will of the putrescent matter, repeating this operation till the greater portion of the contents are removed. The remainder will often be found to be of sufficient texture to be removed with a broach. A drill should not be used in the pulp canal near the apex at the first sitting, as some of the drilled material might become lodged in the apical opening, and so defeat the purpose for which the canal was opened. Saturate the canals repeatedly with absolute alcohol, dry thoroughly with hot air, and insert a treatment of oil of cassia if a posterior tooth, or oil of myrtle if an anterior tooth, renewing the treatment every two or three days, until the root, pericementum, and the surrounding tissues are in a perfectly aseptic condition. The apex of the root is then sealed with cotton and chloro-percha, or with gutta percha, and the canal also filled with gutta percha for about two-thirds of the distance, the remainder is filled with zinc phosphate allowing just sufficient room in the crown cavity for whatever filling material the case indicates.

Dr. Rhein, of New York, recommends the use of two other



agents to chemically cleanse the canals after removing as much of the septic material as possible with broaches, etc., one, a combination of metallic potassium and sodium, and the other a 50 per cent. solution of sulphuric acid. The potassium and sodium are kept sealed with a layer of paraffin, and is used by dipping a worn-out Donaldson broach through the layer into the preparation and applying it to the canals, until the extreme ends of the canals have been reached with the medicaments. The application of the potassium and sodium to the septic matter produces heat, and the chemical action causes a saponification of the organic matter there, which is afterwards carefully washed out with a solution of bichloride of mercury in peroxide of hydrogen one to five hundred, by the use of a hypodermic syringe. An objection to the use of this treatment is the pain caused by its introduction, and especially is this the case if by any means the septic matter has already passed beyond the apex of the root. The 50 per cent. solution of sulphuric acid (known as the Callahan treatment), is applied in a similar manner to the potassium and sodium. After allowing the sulphuric acid to remain for a while in the canals, the chemical action of the acid is neutralized by the application of bicarbonate of soda, and washed out with warm water. The sulphuric acid acts as a sterilizing agent, and at the same time enlarges the canals.

In cases where the disease has passed beyond the limits of the incipient stage before referred to, we must resort to surgical methods, or, as an alternative, the application of medicaments, etc., to the mucous membrane over the apex of the tooth. In surgically treating these cases, an opening is made by drilling with a trephine in the engine through the tissues and alveolar wall opposite the apex of the root, after first anesthetizing the area with ethyl chloride, which, to my mind, seems to be an ideal local anesthetic for this purpose, as it renders the tissues firm, and the trephine is manipulated with greater ease. The sinus thus formed saves the patient several days of great pain, although it may not always be followed by immediate relief. Medicaments may now be forced through the pulp canal and out through the artificial channel thus formed. Warm water should first be forced through, as this is tolerated by the tissues better than an immediate application of any antiseptic solutions; this should be followed by peroxide of hydrogen, and then a solution of oil of cloves in a little warm water. If this treatment has been carefully performed the apex of the root may be sealed at once with the chloro-percha and gutta percha, or cotton and chloro-percha, and the canal and cavity filled, as in the former case.

Instead of resorting to surgical means for relief in these cases, the same good results may be obtained by the use of medicaments as a counter irritant of aconite and iodine, applied topically over the affected root, at the same time using hot foot baths, with a diaphoretic such as a Doyer's powder, and the use of alter-

atives, as magnesia or rheubarb. If this course of treatment is ineffectual in reducing the inflammation, and the symptoms indicate that resolution cannot be expected, then measures should be used by which suppuration may be encouraged. This is done by the use of hot fomentations applied to the face near the affected part, and the patient kept warm, at the same time, applying the fleshy part of a fig or raisin, warmed and softened by steaming over the spout of a kettle, and sprinkled with capsicum, over the apex of the root. After the pointing of the abscess has been accomplished by these means, the same course of treatment should be adopted as described when the trephine was used.

The chronic alveolar abscess is a pathological condition of the tissues, which may either have a fistulous opening through the alveolar wall and mucous membrane, or be confined in a sack at the apex of a root, forming what is called a blind abscess. In the treatment of the blind alveolar abscess, adjust the rubber dam and remove the contents of the canals to the apex. After the pulp canal is rendered antiseptic, the apical foramen is enlarged with a Gates-Gliddon drill, which, if possible, is forced into the sack at the apex, breaking up the contents, which is washed out with a solution of formalid or other antiseptic in warm water, followed by peroxide of hydrogen. After placing a dressing of oil of cassia in the pulp canal, sealed with temporary stopping, the patient is dismissed, to return in two weeks, when the canal and cavity may be permanently filled.

In the case of a chronic alveolar abscess with a fistula there is always a well-defined tract through the alveolar wall opening in the mucous membrane of the mouth, and discharging the purulent matter into the mouth, and if this condition has existed for some length of time, the apex of the root will be found to be eroded, and part of the alveolar wall also, with which the pus has come in contact. After cleansing the pulp chamber and root canal, the rubber dam should be applied, and warm water forced through the pulp canal and fistulous opening, followed by peroxide of hydrogen. This should be followed by pumping carbolic acid by means of a broach wound with cotton, or by the use of a hypodermic syringe through the tract, the carbolic acid whitening the tissues as it appears at the mucous opening. This cauterizes the tract, induces sloughing and brings on acute symptoms, which in a thoroughly sterilized area will stimulate the functional activity of the cells and result in a cure. A solution of chloride of zinc, 5 grs. to the ounce, to be washed through with a syringe, is also recommended as a stimulant to tissue reproduction. This treatment should be administered thoroughly at the first sitting, and antiseptic dressings applied to the root canal until all the surrounding tissues appear to be in a healthy condition, when the tooth may be filled. In case the apex of the root is believed to be eroded we must have recourse to surgical treatment for cure, which is accomplished by means of the trephine be-



fore described. The opening of the pus tract, if opposite the apex of the tooth, is enlarged by the trephine and a portion of the bone removed by large sharp burs in the engine, and the necrosed part at the apex of the root also cut away by these, or else amputated by the use of the fissure drill, cutting well below the diseased area, and if the operation is carefully performed the surrounding tissue will soon resolve itself to a normal condition. In all these operations there should be a liberal use of a good antiseptic solution on the part of both operator and patient.

I had a case over a year ago of a very persistent fistulous alveolar abscess on a superior right first bicuspid, which has been discharging continuously for two years previous to that time. I made an opening through the mucous membrane and alveolar wall to the apex, and burred the necrosed root, with the result that up till about three weeks ago everything about the tooth was perfectly comfortable, and in an apparently healthy condition, but since that time it had shown a tendency to return to its former pathological condition, due no doubt to the incomplete removal of all the diseased bone, and considering the length of time that the abscess had originally been discharging, I extracted the tooth, and inserted a porcelain facing, carried by an open-face crown on the second bicuspid. The root of the extracted tooth was eroded two-thirds of its distance towards the crown on its lingual surface, so that prognosis was very unfavorable. After forcing carbolic acid through the fistulous opening of an abscess, absolute alcohol should be immediately followed by washing throughout with a syringe; this neutralizes the free carbolic acid and prevents any escharotic action on the tissues in mouth from any excess of carbolic acid.

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### DON'TS IN AMALGAM FILLING.

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BY J. Z. RHIND, D.D.S., TORONTO, CAN.

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Read before the Toronto Dental Society, November, 1902.

Amalgam is a filling material which we all use every day, and doubtless the "Don'ts" which I shall give are observed by you all, but it is well to remind ourselves of them occasionally, as I have set down a few of those which we should constantly bear in mind.

Don't try to insert an amalgam filling in an approximal cavity without using a matrix fitting closely at gingival margin, for in order to have a properly contoured filling we must have a four-walled cavity also; if no matrix is used some of the filling material will be crowded over gingival margin of cavity.

Don't let your filling get wet while inserting, for the moisture in the filling will prevent finishing accurately to your intended outline.

Don't leave a thin edge of amalgam projecting over cavity margins on morsal surface, to crumble away later on and invite recurrence of decay.

Don't forget when inserting a large filling that the pressure required in filling expresses mercury from the first pellets, causing a surplus of mercury on the surface, and an unequal distribution of the mercury in the filling; avoid this by squeezing your amalgam between the fingers in such a way that one end shall contain more mercury than the other, then use pellets from the end having excess of mercury first, and finishing with the drier pellets.

Don't leave unsupported enamel on morsal surface when filling with amalgam, just because amalgam is plastic and can be packed in, while gold cannot.

Don't hurry the mixing of your filling; take time to get the alloy and mercury well rubbed together. If the mercury is not broken up and well distributed through the filling, the latter will be dry and crumbly, even though there is sufficient mercury present.

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### QUICK REPAIR, USING VERNON GOLD.

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BY ARTHUR W. SMITH, L.D.S., SIMCOE.

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Last week a lady patient presented herself with broken second bicuspid facing on an upper right bridge (cuspid to first molar). Having no facings of suitable shade, and she being in a hurry to have it repaired, I thought of restoring it with Vernon gold. I kept the part dry by use of Johnson's cottonoid roll and napkin, checking weeping of gum by adrenalin chloride. After picking away the remaining pieces of porcelain, I cleansed and dried the gold backing by use of chloroform, alcohol, and warm air. The first layer of gold was packed on with hand pressure, using a finely serrated amalgam plugger. I was gratified to find the gold adhere firmly to the backing, and continued to build up, using hand pressure and automatic plugger. The pins were solid, and gave additional support; also the gold filling was protected at the grinding surface by the backing being turned up.

The operation was quick, painless, and satisfactory, and when completed could not be detected from an all-gold bicuspid crown.



**Proceedings of Dental Societies****MINUTES OF PROCEEDINGS OF BIENNIAL CONVENTION OF THE CANADIAN DENTAL ASSOCIATION,  
HELD AT MONTREAL.—SECOND SESSION.**

MONTREAL, Wednesday, Sept. 17th, 1902.

The meeting was called to order at 11 o'clock, Dr. Nolan being in the chair. He said: Gentlemen, at the request of Dr. Stevenson, who is unable to be here just at the present moment, I will take the chair, and preside at the meeting until Dr. Stevenson returns, and if you will permit me, I will call the meeting to order, and we will proceed to business immediately. We are to have the pleasure of hearing a paper on "The Filling of Teeth with Gold," by Dr. C. N. Johnson, of Chicago. (See page 1.)

**DISCUSSION.**

THE PRESIDENT.—I will now call on Dr. Magee, of St. John, to open the discussion on this very interesting paper of Dr. Johnson.

DR. JAS. M. MAGEE, St. John, N.B.

I cannot quite understand why I was asked to open the discussion of this paper, but I surmise that the committee having the programme in charge felt they would like a change from the usual custom of having an expert critic taking the initiative.

I do not claim to be an expert gold worker, and, as a matter of fact, I do not think I am an expert—anything else—however, having been asked to open the discussion, it is not for me to refuse.

I wish I were able to express myself as lucidly and, at the same time, as concisely as the essayist, but as the ability to write and speak fluently is given to few, I shall have to content myself with being one of the rank and file of the dental army. I am a worker rather than a speaker or writer.

The discussion of the paper can best be begun at the preparation of the cavity. The essayist begins the practical part of his paper by suggesting that a compound cavity be taken as an example. He briefly describes its shape and then proceeds to explain the *modus operandi* of filling. I presume he has selected a cavity involving the mesial surface with the occlusal, for toward the end he advises the use of the matrix in filling cavities which involve the distal surfaces, if for no other reason than that a good contact-point may be obtained. I go farther than that and say that a matrix should be used in filling all proximo-occlusal cavities, whether mesio-occlusal or disto-occlusal in bicuspids or molars, and it is sometimes indicated in filling those in upper cuspids and incisors. I cannot agree with him that cavities of this

class should be formed with a flat gingival wall. I want to be placed on record as opposed to making a flat seat, that is, flat bucco-lingually, having the buccal and lingual walls meeting the gingival at right angles. I claim that the tooth is weakened when the enamel is cut at a right angle. The step should be flat with a faint suspicion of a dovetail along its entire length, and its walls so shaped that fracture of the enamel rods will not occur either while inserting the gold or subsequently under stress of mastication—parallel nearly describes it, though that is not strictly correct. The gingival wall should be shaped with a curve much the same as the line marked by caries, but it should be flat antero-posteriorly in order that the filling may have a secure seat. From a mechanical point of view, where a matrix is not employed, a filling may be more easily started in a cavity shaped as Dr. Johnson describes, than in one with a curving gingival wall; but where the matrix is employed there is not a particle of difference mechanically in the finished result, and one may be as readily started as the other. The advantage lies with the matrix, too, in that the filling may be more easily and rapidly inserted and finished.

A proximal cavity which has extended sufficiently to demand opening from the occlusal aspect for the insertion of a gold filling, always extends gingivally beyond the free border of the gum, or rather the enamel is quite as weak and demands quite as much cutting away rootwise as it does occlusally. Now, just in proportion as the teeth approach the nervous type, are they weakened by preparation at the gingivo-buccal and gingivo-lingual aspect, as Dr. Johnson advises. A short, thick tooth would probably be quite strong enough after such treatment to withstand all the strain it would be called upon to bear, but the great majority of teeth would be weakened.

My cavity I prepare largely as Dr. Johnson does, except that, as I have stated, I have a curving gingival wall with curved lines where the labial and lingual walls join the gingival. I make slight retaining points in the dentine at the gingivo-buccal and gingivo-lingual angles, extending a slight groove from each one up toward the occlusal aspect, about one-fifth the length of the walls, and another across the gingival wall for about the same distance. These grooves are deepest where they join the retaining-point, and taper away to nothing in the other extremity. A section through the tooth at this portion would show a shape slightly dove-tailed.

Having placed my matrix, made of the thinnest sheet steel, I adjust the Perry two-bar separator, screwing it just enough to hold the matrix firmly. When the cavity extends buccally and lingually very far it is sometimes necessary to hold the first few cylinders in place until the floor of the cavity is covered and the anchorage points are filled. As the work progresses the pressure



on the filling wedges the matrix gradually away from the tooth, and no difficulty is experienced in covering the walls. The separator also being occasionally screwed an eighth, or a quarter, or sometimes even a half turn, enables me to painlessly separate the teeth enough to secure a perfect contour. When I have filled the cavity perhaps one-third its depth I use cylinders which are called semi-cohesive. They are packed with the sides against the buccal and lingual walls, which are at this point quite flat, being past the retaining groove. When I have reached nearly the height of the contact-point I use cohesive cylinders short enough not to reach from buccal to lingual walls, and condense them with their sides against the matrix, continuing the semi-cohesive cylinders against the buccal and lingual walls. The reason for using cohesive gold at this point is that a greater degree of resistance is necessary for the contact-point, and cohesive gold offers greater resistance to attrition than the gold we have been using up to this point. Generally speaking, the thickness of cohesive gold in a filling of this kind should be a little greater than the enamel which normally contoured the tooth. The gold against the middle part of the matrix is now kept in advance of that against the walls of the tooth. When the cavity is filled even with the floor of the step, cohesive gold is used until the filling is completed, the cylinders being lapped one over the other as Dr. Johnson has described. I do not use a mallet until I am placing the last few layers of gold, when it is very effective in producing a hard masticating surface. I condense the bulk of the filling, using hand-pressure entirely. It makes no difference how gold is condensed so long as it is done perfectly. Quite as dense a filling may be made by either using a plugging-point with direct thrust of hand pressure or by using any kind of a clean instrument and stroking (or burnishing, if you prefer the word) layer after layer of gold, as may be made under the mallet, so whatever way seems to be indicated for the particular part of the filling then being done, that I employ. Density is one thing, and hardness is another, yet the difference in resistance between gold that has been malletted and gold condensed by other means is not worth considering when we come to figure out how much larger facets would be worn on one kind than on the other by the adjacent tooth. After the separator and matrix are removed the filling will be found tightly in contact with the adjacent tooth (presuming that the adjacent tooth is sound and in normal position) with a V-shaped space sufficiently large to admit the introduction of a flat burnisher. That part of the filling made up of non-cohesive gold is finished down with vigorous burnishing, careful trimming with a sharp cutting instrument, burnishing again, and when reduced evenly to the proper shape is ready for the final polishing with a very fine grit strip. The separator is readjusted and the remainder of the filling carved and dressed down. It is

then polished with discs, which are lubricated by being held while revolving in the hand-piece against a stick of barber's cosmetic. I take particular pains not to run a disc between the teeth, but let it revolve, resting against the sides of the filling, polishing with the long axis of the tooth, and not crosswise. Having built to a contour against a polished matrix the contact-point will not be improved by running a disc over it. The occlusal surface is dressed down with plug finishing burs, and finished with discs. Just before removing the dam a narrow rouge strip moistened with water is then slipped into the V-shaped interproximal space and the final polishing given that part of the filling.

I am pleased to notice that the essayist uses the word "non-cohesive" instead of "soft," which is so frequently misapplied. "Soft" gold is annealed gold, while "non-cohesive" is in reality hard gold.

Cohesive foil is much more difficult to seal a cavity with than non-cohesive, and the cavity is shaped differently.

To fill a cavity, such as that described in the paper, with cohesive foil entails infinite pains and a degree of energy which could be expended with greater satisfaction in some more worthy direction. Cohesive foil has its place, and that place is a most important one, but the operator who states he has use only for cohesive foil must be a narrow-minded one. He is certainly not giving his patients the services they are entitled to. I speak feelingly on that subject, because I was trained as a student to use cohesive foil only, and had to learn the use of non-cohesive foil after a good many years of toil.

Cavities which have extended almost to an exposure of the pulp (and we sometimes meet cases where the pulp is actually exposed) may be filled with non-cohesive foil and remain perfectly comfortable and useful for the remainder of life. Even supposing its introduction was as easily accomplished, we would not long be left in doubt about the effect a filling of cohesive foil would produce in such a cavity.

It is no easy matter convincing an operator who, without a matrix, can rapidly fill a cavity with gold, that he could finish the same piece of work still more rapidly were he to employ this very excellent auxiliary, yet a practical demonstration will sometimes succeed. He would say, "While you are fitting that matrix in place I can have my cavity half-filled." The matrix worker's retort would be, "Yes, but I will overtake you before you have your gold all in, and then I have an advantage over you in an easier and speedier finish."

THE PRESIDENT.—I will now call on Dr. Moyer, of Galt, Ontario.

DR. S. MOYER, Galt, Ont.

Fillings must fit or fail. The paramount consideration for us is: How can we make them fit—fit so that they will be abso-



lutely water-tight? The older masters succeeded with soft gold, but could not contour with it. Ten per cent. of the fillings in the proximal cavities of bicuspid and molars inserted by our best operators with cohesive gold fail.

In this eclectic age we are too prone to "ring out the old, ring in the new;" too willing to reject our inheritance rather than profit by the experience, teaching, and the success of our dental fathers. Dr. Johnson's paper, so scientific, so lucid, so fraught with common sense, is at this time most important and most opportune.

Gold is king. 'Tis a subject old, yet ever new. The more we work with gold the more it calls for the best that is in us—operative, intellectual, esthetic. We should be able to use non-cohesive gold as they did in the past, and cohesive as the best men do at present. There should be a happy medium. In the days of non-cohesive gold they were past-masters in manipulation, their dexterity and accuracy would put us to shame. Of them it might be truly said:

In the elder days of art  
Builders wrought with greatest care  
Each minute and unseen part,  
For microbes work everywhere.

. . . . .  
Let us do our work as well,  
Both the unseen and the seen.

This, I believe with Dr. Johnson, can be most easily and surely accomplished by an intelligent combination of both forms of gold. Not, in some of our practices, to the extent that he claims they may be advantageously employed in combination, viz., "in most of the gold fillings we have to insert," but in cavities, such as he has described in bicuspid and molars. In other cavities where he would use soft gold I would use crystal gold, as the main object would be to save time.

With a genius for interesting detail Dr. Johnson has shown us step by step just how and where to place each obedient mat, or cylinder of non-cohesive gold until the pulpal wall is covered or the gingival third filled; not a pellet has dropped or moved out of place. How different the experience of some of us. We even now, fitful in fancy, feel the cold sweat and the hot flush; but we failed mainly because our cavities were not properly nor scientifically formed. We could neither see into all parts of them nor get direct access into all parts, and our gold would not be still because of the rolling form of the cavity.

To those of you who have had difficulty in starting and building up the gingival third, I should like to recommend Dr. Maynard's method of packing non-cohesive gold into a cavity prepared by Dr. Johnson. First, cover the gingival wall with cylinders of gold, having one end butt against the axial wall and the other extending well over the margin of the cavity. Next

apply the matrix, and in shoving it down carry with it the projecting ends of the cylinders. They will be held in place and will protect the cavity margin. Add another layer of gold, and place over it a covering of chamois-skin or paper the size and shape of the floor of the cavity. Mallet this layer by layer down and so continue to add and condense until you have added as much soft gold as is desirable. You will thus find no difficulty in securing adaptation and retention and of securing a perfect fit to that part of the cavity. You will succeed where you failed before, and you will be surprised and delighted when you consult your "Waterbury."

While Dr. Johnson's paper is for the most part a plea for combination gold fillings and the proper manipulation of soft gold, that to me is a very small part of the paper. He has touched with a master hand and given us information on a score of difficult and disputed points, which no doubt he will be pleased to discuss.

Let me enumerate: Cavity preparation, extension from the proximal into the occlusal, a flat gingival wall—some would have it convex, the angles right angles—a sharp starting-point in the gingivo-axio-lingual and gingivo-axio-buccal angles, a vertical step, flat seat in the step, vertical walls and a dove-tail on the occlusal. Then follows the forming of soft foil into ropes and cylinders, and the length of the cylinders. Then how to grasp them, how to place them, how to tuck them in and how to retain them.

Next follows the plugger-point—stiff-shanked, serrated, broad as the pulpal wall, to be used with hand pressure and rocking movement. His method of adding cohesive to the uncondensed areas of soft gold is admirable. Then he climbs the step and firmly connects the gingival portion with the occlusal, a very important step. He now evenly arranges the layers of foil to avoid air spaces—the overlapping of enamel margins with slight excess. The use of the foot-plugger, burnishing from the centre of the filling over the margin. The contact-point is now condensed with steel mallet, and its proper form and position secured with a matrix.

Lastly, he finishes the filling: narrow files, sickle-shaped trimmers, narrow finishing strips inserted from the buccal through the interproximal space, next the separator for access to contact-point, the polishing of the occlusal surface, and the patient is dismissed.

Gentlemen, I have very carefully looked for something in Dr. Johnson's paper to take exception to, or a weak point where I might possibly add a thought or two, but there seems to be no place where I can either build up or tear down; I am in hearty sympathy with the essayist. Many questions I should like to ask him; I want to drink from such a fountain.

In conclusion, let me again repeat that the subject is a most



important and opportune one, and has been most admirably treated. We are under great obligation, as we often have been in the past, to our Canadian-American brother and cousin, Dr. Johnson, and I would assure the man, whose spirit took flight in such noble reform:

Yet while void of force exalted,  
Great enough to stir the land,  
I've a mission meek but mighty,  
I can hold a baby's hand.

I would assure him that he is to-day holding the hand of the dentists of Canada, giving them of his life and spirit, a mission grand and mighty, which we as fellow-dentists and fellow-Canadians appreciate more than he can ever know.

THE PRESIDENT.—Are there any other gentlemen who would like to say something in this connection?

DR. CAESAR.—Mr. Chairman and Gentlemen, I do not feel like permitting this occasion to go by without adding a word or two. It is not possible for most of us to attend a lecture or hear a paper every day by that celebrated teacher and lecturer, Dr. Johnson, of Chicago. (Applause.) I suppose there are about two hundred persons in this room, and if they have not got his latest book on the treatment of the teeth and the care of the teeth, there should be two hundred of them that would take it away from this meeting: and when you get it, you will probably do as I have done, keep it near at hand, and when you have five minutes to spare you will be delighted to take it up and read a chapter over and over again. This Dr. Johnson is a peculiar man; he has engrafted himself into the hearts of every Canadian practitioner. He little knows, I think, how highly he is looked up to in this country. He commenced with Dr. Patterson, one of the finest old gentlemen (I think Dr. Willmott will agree with me) that we had in our Western country. After that, Dr. Johnson attended the Royal College of Dental Surgeons. He attended the lectures there under—allow me to say—as good a dean as there is in any dental college in the world. (Applause.) I need not go further on the question. If there is a better dean, a better guider, and a better head for running a college, and in affirming this I know well the strength of my assertion, I say if there is such a man I don't know him. Dr. Johnson has gone on from that time, that he left the charge of that able dean, up to the present, and while most of us were playing golf and spending our spare moments horseback-riding, or in some other amusement, he was spending his time in developing himself, to his present state of perfection. We have in him what we are proud of as Canadians. He is a professor of the most important chair in a dental college, a professor second to none in America. I will go further, and say I believe second to none on earth. (Applause.) And not only has he ability to teach from behind the desk, but he will go to work, and he will tear down every

barrier in a practical manner, just as he has done to-day, and he has ability to do that for all those difficult operations and all those difficult cavities where many of us will fail. I congratulate the committee upon having secured a paper from so able a man as Dr. Johnson. It is a nice thing in Dr. Johnson that he is always ready and willing to come to Canada since he has forsaken us, to come and give us the benefit of his experience. (Applause.) Suffice it to say, gentlemen, that if you want full gatherings at these meetings, announce that we are going to have something from Johnson, of Chicago, and the house will be full.

DR. THORNTON.—Canadians all, we ought to be naturally proud of Dr. Johnson, and I am afraid if there was very many of us as emphatic as Dr. Caesar, he might be spoiled by our praise; but I will say that much of the terror of my practice has been removed by following the teaching of Dr. Johnson. Formerly a Canadian, he is always willing to come back to Canada, like a bad penny. (Laughter.) As I say, following Dr. Johnson's book, those difficult operations have become rather a pleasure than a difficulty to me, and I want to say I have felt very much pleasure in listening to Dr. Johnson's paper, and I think I have profited some by it. (Applause.)

DR. BRIMACOMBE.—I would like to ask Dr. Johnson if he discarded the use of the automatic plugger.

THE PRESIDENT.—Are there any other gentlemen who wish to ask any questions?

There being no questions, Dr. Johnson rose and said: Mr. President, ladies and gentlemen, I shall not say much in closing the discussion of this paper. If some one had attacked the position I took, I could have said something; and I was in hopes that there would be opposition to this paper, to bring out discussion, and throw some side-lights upon the subject. It seems to me there were any number of opportunities for questions being raised as to the advisability or otherwise of certain methods of practice advocated in the paper, things of the kind that would have formed a basis for a lively discussion. I feel more comfortable when I am being opposed somewhat, than when I am being praised. Some one asked me a moment ago: "Will your hat fit you after this?" Well, it has never had a misfit yet. I realize my limitations too much for that.

There was one practical point brought out by Dr. McGee, to which I want to refer briefly. The point raised was in regard to the form of the gingival wall, whether it ought to be curved, buccolingually or flat. Dr. McGee raised the contention that it should be curved, which is upheld by very many of our best operators. I took the position that the gingival wall should be flat buccolingually. One reason for this is connected with the idea of extension for prevention in forming the outline of these cavities. Remember that the preparation of the cavity did not form an integral part of the paper; it was simply incidental, and I did not give reasons for the ideas that I had advanced. Another reason is the question of anchorage. This has been threshed out



so much that I feel somewhat delicate in alluding to it, but I do want to say this, that the difference between anchoring the filling upon a curved wall and upon a flat wall is simply the difference between rolling a sphere and rolling a cube. If you have the gingival wall curved it will be easier for the filling to move under the pressure of mastication than if anchored upon a flat wall.

Another point mentioned was the fracturing of the teeth. The statement was made that the tooth would be weakened, by making a flat gingival wall, and that there was danger of fracture.

I have seen many broken teeth, but I have very seldom found a fracture occurring at the junction of the buccal with the gingival wall. It occurs higher up, and for an entirely different reason. I do not want to go into details on this subject, because the paper did not refer particularly to cavity preparation. This is an important subject, and is one that should be interesting to all the members of the profession, and it is well worthy of a paper in itself.

Some gentleman asked a question in regard to the automatic plugger. I did not quite catch the question.

DR. BRIMACOMBE.—I asked if you had discarded the use of the automatic plugger.

DR. JOHNSON.—The automatic plugger that I use and have been using for seventeen years is the left wrist of a young lady. I have discarded the automatic plugger, for the reason that with a perfect assistant, I can do more delicate work and do it more rapidly than I can with the automatic plugger. I do not by that imply that the automatic plugger should be discarded—not by any means. But where the operator has a well-trained assistant in his office, he can perform work more rapidly and with greater comfort to the patient than with the best automatic plugger that is made. (Applause.) I am deeply sensible of the compliments that have been paid me by Dr. Moyer, and also by my good friend, Dr. Caesar, although I want to correct one slight error into which Dr. Caesar has dropped. He made use of the term “forsaken Canada.” Gentlemen, when the time comes that I ever forsake Canada, you will know that it is because I have gone to an insane asylum. (Applause.) There will be something wrong, not only with my heart, but with my brain, because heart and brain I am in love with Canada. (Applause.) If there is any one body of men, or if there is a profession in existence in whom I have an interest, it is the dental profession of this Dominion. (Applause.) I hope to see the fulfilment of that which has been started at this meeting. I hope to see the good work go on until there is a national sentiment developed in your profession. I want to take this opportunity to say to you—and I say the same thing when I am on the other side of the line—you have the opportunity in this Dominion to make one of the best bodies of dental practitioners that exist on the face of the globe. (Applause.) There are some things connected with your system of education here that are in advance of ours on the

other side of the international boundary. You start in with a foundation which enables you to attain a degree of perfection that is impossible upon the basis on which we are working. It is one thing connected with dental education in Canada that makes me proud of the fact that I was born on Canadian soil. (Applause.) I hope also to see the fraternization of the professions of the two countries; but if I don't stop I will be making the speech that I intended to make to-night at the banquet. I am deeply grateful indeed for the reception that has been given my paper. I would have been more in my element, and I would have felt that greater good was accomplished, if more points in opposition had been raised; and if they had, then I would have been in a better position to entertain you with my reply. (Applause.)

THE PRESIDENT.—Before we pass on to another subject, I beg, in the name of the meeting, and in the name of Canadian dentists, to cordially thank Dr. Johnson for the favor he has conferred on us in giving us his most interesting paper. The doctor says he is in love with Canada, and I can only say, in the name of the Canadians, that we certainly return the compliment. (Applause.) Now, gentlemen, if there is any further business, or any further discussion for this meeting, we would be very pleased to hear it.

#### NATIONALIZATION OF THE DENTAL PROFESSION IN CANADA. DISCUSSION.

The President, Dr. F. A. Stevenson, called upon Dr. Nolin to open the discussion on "Dominion Registration."

JOSEPH NOLIN, Montreal.

*Mr. Chairman and Gentlemen*,—I will now proceed to discuss the very interesting papers which have been read this morning. Before doing so, however, I beg leave to congratulate the distinguished gentlemen who have prepared them with so much care and ability, on the earnestness and the sincerity with which they have described their individual ideals.

As much as some of us, most of us, perhaps, may differ from their views, we cannot but be grateful to them and heartily thank them for the good they would do the profession. While listening attentively to the several gentlemen who have just spoken and who so ably represent their several provinces, I have been forcibly impressed by two particularities. First, the taking for granted by all of them that the Dominion Registration is desired or desirable; second, the diversity of the plans suggested by each of them.

When we come to discuss Dominion registration, there arises in my mind three question. These questions are the following:  
1. Would any change from present conditions be desirable?  
2. If so, is there any immediate need for it? 3. Would any such change be practicable or possible of accomplishment under existing circumstances.



Before showing the reasons why I would answer these questions in the negative, let me state that as much as any one in this room I love my profession; as often as any of the gentlemen who have just spoken, I have dreamt ideal dreams concerning its future. With as much desire to vanquish I have fought its battles; but, Mr. Chairman, because of my love for it, because of my desire to see it attain its highest standard, because of my fear that anything hastily undertaken might compromise its future, I, right here, declare that I am for the moment opposed to any such measure as is proposed.

Now, gentlemen, it is all very well to have ideals; but, at the same time, we must remember that ideals can only be realized on one condition, which is: that they be not incompatible with reality; and I might add that they be at least superior to the conditions which they are called upon to supplant.

The movement for Dominion registration which has taken place since some time, in the medical profession has, I believe, been the first cause why some of our most enthusiastic confreres have desired to start an identical movement among us. Although we justly claim our profession to be in no way inferior to theirs, the material circumstances of the two bodies differ considerably, both as to the number of practitioners in each province and the recognized status of each.

It cannot be denied, notwithstanding the wonderful progress accomplished by dentistry within the last century, the wonderful developments of its educational standard, the undeniable position it has attained in society,—it cannot be denied that it is yet going through a period of evolution, and that a great deal has to be accomplished both in its essential composition as a whole and in the individual training of a great many of its members before we can bring the masses, alas! even a great many among the highly educated, to recognize us as a profession.

The blending of our provincial associations into one harmonious body would indeed be a glorious ideal; but for the present it must remain an ideal. Before we can undertake such a task it is necessary for us to perfect each of our provincial associations in such a manner as to render them harmonious. Then, perhaps, and then only, the blending of them all may come as the result of natural evolution.

The constitution of the British Empire has been mentioned by one of the preceding speakers. I may say that the British constitution is not only, as he said, the result of precedents, but that it is also the most beautiful example of natural evolution known to the world. As compared to the constitutions of other countries which for the most part, have been the creations of a moment, it stands without a peer as the most stable and that which offers the most complete protection to its followers. So, the constitution of a body like ours, to attain its most perfect form and assure its best chances of stability, should be the result

of natural evolution, and any attempt to hasten the course of events would, I fear, not only result in imperfect conditions, but might also easily lead to disaster.

That Dominion registration will come some day, I, for one, feel sure, but it will come naturally, as the unsolicited gift of each Province to its sisters. But, Mr. Chairman, this cannot happen before each provincial body finds that its local formation is complete; that it has attained at home that perfection which it would require from its neighbors, and when it has forced public opinion to recognize it as equal socially and professionally to any other professional body.

In brief, Mr. Chairman, to my first question: Would any change from present existing conditions be desirable? I would answer: Decidedly no.

But, granting that the question could be answered in the affirmative, still would there be any immediate need for the change, such a need as would counter-balance the risk incurred? Show me those who suffer any measure of hardship from the absence of Dominion registration. I can well understand that in a profession like that of civil engineering, where one has to travel from one end of the country to the other performing his professional duties, there would be a call for a Dominion degree; but in a calling like ours, where one, by the nature of his professional duties, is tied to the one spot, what pressing need is there for anyone to hold a degree which would allow him to change from one Province to another? There may be a few who would use such a privilege, one, two, three, ten, perhaps. Suppose there be twenty, would that be sufficient reason to endanger the tide of progress, the harmonious race to a higher standard which has taken place and is still taking place in the profession at large?

As to the possibility of such a change, Mr. Chairman, I would have little to say, but it is my belief that the undertaking of such enterprise, while our medical confreres are trying to pass an identical measure as the one proposed, would hardly be wise before we have seen to what extent they may be successful. Medical Dominion registration is far from completed. Let it get beyond the experimental stage, and then, if it has attained a certain measure of success, we, the younger profession, may, if we choose, follow in the footsteps of the elder.

Those of us who have had some experience in the work necessary to put any law through a legislative body, who know the risk incurred, are probably less sanguine of the success of any such measure than those who have no experience in the matter. Public opinion must be fully prepared to accept such a measure before it can be pushed through without danger to existing privileges.

Although I am opposed, Mr. Chairman, to Dominion registration, at least for the present, still I feel that all Canadian dentists should know more of one another, and I congratulate the



organizers of this meeting on the fact that they have sown a seed that will surely bear fruit. There is no possible objections to a Canadian Dental Association. Such an organization, Mr. Chairman, bringing together men from the different provinces, making them better known to one another, giving them a chance to compare notes, take good points and eliminate bad ones will result, I am sure, in the harmonizing of the standard in the different Provinces. The thorough organizing and the energetic maintenance of the Canadian Dental Association is, to my mind, the best and, in fact, the only means of bringing some day, if ever, that desideratum of the gentlemen who have spoke this morning, which, for the present, for lack of a better name, we call Dominion registration.

THE PRESIDENT.—Dr. Thornton, of Chatham, has something to say, I understand, on this subject.

DR. THORNTON.—Mr. Chairman and gentlemen, when Dr. Webster wrote me, asking me to take part in the discussion on the subject, he assured me that the papers would be sent me in time that I might thoroughly digest their contents. I received, late last week, three of them, and one on Saturday night, making the fourth; the others I knew nothing about till to-day. That, however, will have some compensation, for I can assure you that one good point it will lend to anything I have to say, will be the point of brevity. You will understand how impossible it would be to give anything like a complete resume of the papers which were presented this morning; and were it possible, at this hour, it would be very ill-advised. There was one strong spirit breathed through all the papers, that pleased me exceedingly, and that was the spirit of patriotism. Those of you who are familiar with the writings of Ella Wheeler Wilcox will remember she makes Maurine say to the lady friend to whom she is committing the care of her child, "Next to her God teach her to love her country. In her young bosom light the patriot's flame, until the heart within her shall expand, with love and fervor at her country's name." And it must be exceedingly gratifying to the men who are practising in this Province to see such a spirit of patriotism as is breathed through all the papers which have been read here. Our friends from the south of the international line will understand that, viewed from the standpoint of the dentists of Canada, this is our Fourth of July and Washington's birthday rolled into one. Though they are far from home and may feel lonely, because for a few days they may not hear the squeal of the American eagle, we can assure them that they will not go back to their own country without bearing in their ears the flap of the Union Jack. (Applause.) I was particularly struck, too, with the unanimity with which the idea was presented, until the paper which was read by my friend, Dr. Nolin (when I saw his name I thought he was a fellow-countryman of mine, but I

understand he is a Frenchman, not from Cork, as I am, but from Canada). His position in this Society is something like the Ontario Government. There they have one majority; here there is only one in opposition.

Dr. McInnis, in his paper this morning, which I knew nothing about till he read it, touched on a point which particularly pleased me. When he suggested that the Act be made retro-active he said that Dominion registration should be granted to those who were in practice, say, for five years. I would like to ask why it is to be limited to five years, or over. Are the men who are practising ten or twenty, or twelve years, as I am, who attended college when crown and bridge-work were unknown, or almost so, when orthodontia was not taught—are such men to be granted what would be refused to men who have graduated only a year ago, and whose privileges have been so far in advance of our own? I would say, unhesitatingly, if you make it retro-active at all, include every man who is at present practising dentistry in the Dominion of Canada. I am glad Dr. McInnis touched upon the subject of imperialism; it is in the air, by one name or another; it is bound to come; it would be an anomaly if it were not so, for in any country the men who are ready to lay down their lives, if necessary, upon the altar of their country should not be denied the privilege of earning their livelihood in any part of that country, and so I say there is an anomaly of conditions existing at the present time, that we are looked upon, as one gentleman said, as professional gentlemen of good standing, in one Province, but if we happen to cross a side-road or a river, we are looked upon as criminals, and liable to be taken before a police magistrate. It will not be so some day; there ought to be some way out of this, and I think that in the not far-distant future Dominion registration will be an accomplished fact; more than that, I think the time is not far-distant that wherever a man may be in this country, if he bear a diploma from a reputable dental college, he will be permitted to hang out his shingle and earn a living for himself and his family.

Dr. Woodbury made a suggestion, with which I am not in accord. He said that in the council, which would be naturally formed in connection with Dominion registration, he would deprecate the fact that any representation should be given to the colleges, that the colleges should not be represented on that council. I do not agree with this. These are the men who are able; they are the men who are best qualified to mark out the curriculum. If you make any changes, make them to broaden and elevate the profession higher than it has been.

Dr. Bagnall, it seems to me, trod upon dangerous ground, when he spoke of two standards, the Dominion and the Provincial standard, that there should be a Provincial standard as at present, but that those who wished to register as Dominion practitioners should have higher theoretical and practical examina-



tions. It seems to me that that would be an unfortunate affair—nay, it would create invidious distinction, and the Dominion Jew would then have no dealings whatever with the Provincial Samaritan. It would make altogether impossible (in my opinion) such gatherings as we have here at the present moment. Whenever the time comes that Dominion registration is an accomplished fact, all men must stand on a common level. (Hear, hear.)

I was particularly pleased with Dr. Cowan's paper. It smacked of the freedom of the prairie. Only those that have lived there know what a glorious country it is, a country of high ideals, and I am glad that the representative of our North-West Territories comes down to us with the air of the granary of the world in his closing sentences, which reflected credit not only upon himself, but upon the people whom he represented.

Dr. Stevenson, in part of his address, touched upon the question of matriculation, saying that when Dominion registration became an accomplished fact that the standard of matriculation should not be lower than a B.A. Now, it seems to me this is a mistake, Mr. Chairman. What does it mean? No reputable college will grant a degree in arts to any man who is a minor—who is not twenty-one years of age; and the average age at which men attain to a degree in arts cannot be less than twenty-three or twenty-four years. Do you think that a man, after having taken a course in arts, being twenty-three or twenty-four years of age, and being in a position to earn \$1,000 or \$1,500 a year, is going to go in and serve four years' training in dentistry? I don't believe it is possible; I don't believe it is feasible. There is such a thing as carrying a logical argument to an illogical sequence, and I believe this would be one of the cases. I believe if we establish as a standard, matriculation in arts in a reputable college we will be doing the right thing. Sound breadth of character and breadth of thought can never be fully attained while a young man is a student in school, but the education of a man must be continued and must be carried to completion after he has left his Alma Mater.

From Dr. Willmott we expected great things: we were not disappointed. No man in Canada has the intelligent grasp of Canadian dental laws and affairs that he has, yet Dr. Willmott said some things that I would not like to endorse. You remember his opening sentence. From his standpoint Dominion registration did not mean the possibility or the feasibility of anyone peddling dentistry from Halifax to the coast. That was Dr. Willmott's way of saying that the profession must be safely guarded, and that poor men, undesirable men, might be reduced to a minimum. We all agree with that; but Dr. Willmott must remember the saying in the Great Book, that the poor we have always with us. That is true in dentistry as well as in every

other branch of life. I heard some time ago of a clergyman who preached from that text. He said that the poor might be divided into three classes, namely, the Lord's poor, the devil's poor, and the poor devils. We have them all in dentistry. We have the Lord's poor, the men who are large in heart and large in mind, but because they have not been cut out for their calling, because of sickness in their families, because their own health has broken down, they draw on our pity, they are the Lord's poor. Then, there are the poor devils, the men to whom Dr. Willmott refers as the "habitual drunkard," or the man who is a slave to a narcotic habit. We have some in Ontario. Then, there are the devil's poor. These are the men who prostitute the profession, of which they should be honored members—the men who prostitute everything they touch. Dr. Willmott said that cancellation should be made possible, so that the habitual drunkard should be written off the roll. I should like to ask Dr. Willmott if drunkenness is the unpardonable sin? Are there no men practising dentistry in the Provinces—in the Province of Ontario even—who may not be habitual drunkards, but they are habitual liars and habitual thieves, and habitual maligners of other men's characters. I do not mean that they put their hands in your pocket and steal your purse, but you know what has been said by that master of English literature; he made a comparison between the man who would steal your purse and him who would filch your good name. And I say there are men practising who perhaps never take a drink, compared with whom the habitual drunkard would shine as a very angel of light. There are men who rob you of your character, and men in whose hands you would not dare to trust one of your patients. (Applause.)

Dominion registration is coming, and may God speed the day. The only question for us to answer is, have we yet attained to our full stature? Is there something better, nobler, higher than that to which we have yet attained? If so, let us not rest satisfied till we have occupied all the land that is still vacant, until we can say that we have attained to our full stature. I thank you, gentlemen; I will not keep you any longer. Some of the boys want to go down to Chinatown.

THE PRESIDENT.—In order to facilitate the discussion and bring something tangible before us, the Executive Committee had an informal meeting, and it was suggested to place the question in a more concrete shape. It would be better to refer the whole matter to the Executive, and have them make a recommendation which could be brought before the Association in due course, and acted upon. I think, if that meets with the approval of the meeting, it will save a good deal of desultory talk, and you will have the question before you in a concrete form, so that you will have something to attack, or something to agree with. As it is now, it will be very difficult for us to come to any understanding, and it is better, I think, that we should refer the matter to the



Executive Committee, and we may get a resolution presented to us by them, and that might obviate a lot of unnecessary discussion and bring things down to a business-like basis.

DR. NOLIN.—Before such a motion is proposed, I think it would be advisable, before the committee do any work, to have the meeting decide whether it would be accepted or not. I do not see that it is necessary to go into elaborate details and take up a plan of work before it is decided whether or not Dominion registration is desired. If it is decided that we want it, then refer the matter to the Executive; but that, I think, is the first step that should be taken, that is for some one to propose that this be done, and have a vote on it.

THE PRESIDENT.—Do I understand you to move that the question be put to the meeting whether it is desirable to discuss further the question of Dominion registration?

DR. NOLIN.—Yes.

THE PRESIDENT.—Will anyone second Dr. Nolin's motion?

The motion was seconded by Dr. J. E. Wilkinson, of Toronto.

THE PRESIDENT.—Those in favor of Dr. Nolin's motion, that is desirable to discuss further the question of Dominion registration at this session, please signify by raising their right hand. The motion was lost.

DR. IVES.—I think it might be well, gentlemen, before we go on, instead of discussing this matter indefinitely, if it were left in the hands of the Executive Committee and the representatives of the various colleges who are here, and in that way we will get this thing down to a final point and have something definite to put before you. I don't think we will ever arrive at anything at all in this way; whereas, if it is left in the hands of the Committee, they might probably draw up the necessary idea, and have something definite to give you; then the discussion can be continued on these lines. If that meets with the approval of the gentlemen present, I would suggest that the matter be left to the committee till we have some idea drafted.

This motion was seconded by Dr. A. E. Webster, of Toronto.

THE PRESIDENT.—It is moved by Dr. Ives, seconded by Dr. Webster, that the Executive Committee be instructed to put the matter in concrete form to present it to the Association within the next twenty-four hours, or as soon thereafter as possible, so that the convention may have something definite to discuss. The motion carried.

#### REPORT OF COMMITTEE.

THE PRESIDENT.—As the morning is getting on, I will ask the Committee on Legal Registration, who were in session all day yesterday, if they can give us their report on the subject, which was referred to them, namely, that of a Dominion Dental Council, so that this Association may have something definite before it.

The Committee of Legal Representatives beg leave to report

*re* the nationalization of the dental profession, that we are of the opinion that it is expedient to proceed at once to the organization of a Dominion Dental Council by requesting the several provincial and territorial corporate bodies in the Dominion to appoint one member to such council, these to meet at the time of next Canadian Dental Association, to formulate a scheme for obtaining a qualification for the practice of dentistry, which qualification will be accepted by the several Boards.

Moved by Dr. McInnis; seconded by Dr. Willmott.

DR. MCINNIS.—While I am on my feet, I will take the liberty of moving the adoption of the report, and say that we spent several hours in discussing the details of the matter, and this report is the result of our deliberations; further, we found it difficult to decide upon any other course than the one which is embodied in this report, for the immediate present. The difficulties were numerous, and we thought that something of this kind would get the matter before us, and get it moving; and in the meantime, the campaign of education could be entered into whereby those who are not yet in a position mentally to feel in full sympathy with the movement, would be able to receive some light upon the question. We felt that the result would come in time. The difficulty is that the Province of Quebec has an excellent dental law, and they have some fear in undertaking to change it. They have some fear that the introduction of a Dominion Dental Council would interfere with their present law, inasmuch as before they could adopt any standard set up by the Dominion Dental Council it would be necessary for them to ask that their law be amended. This they are not in a frame of mind to do. I believe they do not wish at the present time to go to the Legislature and ask to have any amendment made to their law; therefore this objection on the part of Quebec was a complete estoppel to any movement in that direction, and we felt compelled to get up something to bring before you to-day, and we thought that probably by the time everything would be in working order, that we would have a scheme prepared to further our interests. There was a strong opinion expressed to the effect that an arrangement as suggested by Dr. Willmott would be preferable, that is, an arrangement for the formation of a Dominion Council, by mutual consent of the corporate bodies in Canada. This, of course, commended itself to the Committee, and I believe it will commend itself to you. I see in it a means of getting out of the original difficulty. However, it is a move in the right direction, and for my own part I am particularly gratified at the result of the deliberations upon the matter. If this report is adopted, we have gone as far in the direction of forming a national standard as I expected we would do at our first meeting. It is only by long and earnest campaigning and by education that we can attain any great movement such as this would be. I was particularly pleased, further, to notice last night at the



banquet that the Hon. J. Israel Tarte, Minister of Public Works, so favorably expressed himself as to the action of the Dominion Medical Association in having established a Dominion Medical Council. I was also very pleased to hear him hint and express himself as being so favorable to us, and that it would be wise for us to do such a thing,, and that he would gladly support any effort in that direction on our part. There has been something said about politicians on one or two occasions; and I will admit this—I will say in answer to that that politicians are honest in the treatment they are giving you; they don't care a straw about dentists as dentists. When I heard from Dr. Woodbury and one or two others who speak about the conditions in the several provinces—about the legislators creating barriers to keep good men out, I do not agree with that. Now, a legislator is a simple, common, ordinary, honest, thinking man; he is working for the interests of the public, and as I said before, he does not care a straw for the dental profession, inside or outside the legislative district. He thinks that in protecting the dental profession—that is, in the dentists asking for certain things, they are not asking for them in the interests of the public, but rather in the interests of the dentists. Legislators do not set up barriers to keep good men out, but they do what they consider to be in the interests of their people, and they do set up barriers to prevent those who are unqualified from abusing their profession and hurting the public. This they consider to be their duty in the public interest and in the protection of the public; and they set up such a barrier as appears to them, from the light they have, as being sufficient to protect the interests of the public, and they care nothing for the profession, outside or inside. That is something we must bear in mind, and any application we make to the Dominion for legislation upon the matter, as I said, will be looked upon as a move in the interests of the dentists. It must be based purely upon the education that we are able to infuse into those who form the legislature; and we must endeavor to raise the public up to a higher appreciation of our standing. The standard which we will have must be one which will give greater security to the public, and it will have to be largely based upon the national spirit that is abroad in the land to-day. You know that sentiment may seem very light, but at the same time, it is an excellent thing to work on at times. Imperial and national sentiment is largely abroad in Canada to-day; and while we have it, it is becoming to the learned professions that they should not allow the movement to sink, but should adopt a national standard for their professions, and ultimately we will be enabled to adopt imperial standards. I have much pleasure in moving the adoption of the report.

DR. J. B. WILLMOTT.—Mr. Chairman and gentlemen, I am very pleased indeed to second the motion for the adoption of the report. Personally, I would have been very glad if we could have seen our way clear to get a little further in the direction of

Dominion qualification; however, that seemed to be impossible, but I think we have done as much as we possibly could under the circumstances. What I thought might have been possible was to have outlined a scheme which could have gone back to the Boards; but that was not practicable. I have been very much pleased, however, with the discussion. There is nothing which removes prejudice and misunderstanding like getting together and talking over the matter; and it often happens that what seem to be enormous difficulties, dwindle down to comparatively insignificant obstacles, when we get near them and try to overcome them. I am quite satisfied that we have got this matter as far as it is possible to get it at our first meeting. I have no doubt but what we are aiming at will be eventually accomplished. Even those who are now opposed to Dominion qualification will withdraw their opposition when they become better informed as to what is proposed, and the probable results of its adoption. I think something may be accomplished, however, in the direction of getting rid of the barriers by mutual arrangement. It struck me, when we were discussing the matter of a Dominion Council, that there was possibly a way to accomplish something; and I think, so far as the Ontario men are concerned, they are prepared to take the initiative in making propositions to the authorities in other provinces in that direction. I was rather pleased at Dr. McInnis's reference to politicians. I am not a politician, that is to say, in the sense that I am willing to give my time and money and energy to the advancement of party politics, but I vote always when I get a chance. There is no question at all but that Dr. McInnis takes the proper view, so far as the politician is concerned. They don't care a continental for the dentist. He does not control votes, and the whole number of dentists in a constituency is too small to influence an election. I have been before the Legislative Assembly in Toronto fifteen or twenty times, and it is not very flattering to realize just how little consideration the dental profession receive at the hands of the politicians. If we were a trades union which controls thousands or tens of thousand of votes, they would listen very attentively to anything we might have to say, because if they offended us they would lose our votes, which would go to the other side. There are some members of our Legislature who think that the interests of the public and the interests of the profession are not in harmony. They hold the view that the dentists are interesting themselves in the interests of the dentists, and that they therefore deserve to have every obstacle put in their way, because they are desirous of putting difficulties in the way of the multiplication of dentists, in their own interests. In Ontario we have been trying to prevent the Legislature from doing things that we thought were grossly unjust to the men engaged in the practice of dentistry, and it has been with the greatest of difficulty that we have been able to persuade them (the legislature) that it was unfair.



On the whole, however, the politicians of Ontario have not treated us badly. The progress we have made should not be lost sight of. The first Dental Society in Ontario, and I think in the Dominion, was organized in 1867, only thirty-five years ago, a very short time in the history of a profession. Dentistry in Canada previous to that date was chaos. This has given place to order, and system, and rapid growth. The Dental Law of Ontario was passed in March, 1868; that of Quebec, I think, later in the same month. These antedate all other effective dental laws. That of Great Britain was passed in 1878. Another instance of Canada leading the world. In every Province and Territory we have efficient dental laws, and everywhere we have a fairly high standard, not only for admission to study, but as well for admission to practise. Modern Canadian dentists are educated, intelligent, gentlemen, and are respected as such in the community. I think that, as we have accomplished so much, we have no reason to be discouraged. As we look into the future we may reasonably hope soon to unite the profession on an education and qualification which will admit the holder to register and practise anywhere within the Dominion.

THE PRESIDENT.—Gentlemen, it has been moved and seconded that the resolution as presented by the Committee, be adopted by this Association. Are you ready for the question?

DR. SPARKS.—I would like to read a letter which I have received from a member of the profession, Dr. T. J. Jones. He is well known in Ontario, and I think he is President of the Board of Examiners for the Province of British Columbia. He says, in part: "Speaking of this Dominion Registration, the object is a grand one for Canada, for then we can take our place in Dental Congresses in the world. I wish you to express my views on this subject, as strongly as you can do it. I am fully in accord with the Dental Board of Examiners, and am proud of my country; and I hope I shall live to see the dental profession take its place with all other professions. It is not right that some of the brightest of our young men should cross the border, to enter college in a foreign country. You cannot dwell too strongly on this point, from my view of thinking." I may say, in connection with this, that the Doctor has sent his fee, and wishes to become a member, and has been duly enrolled. Personally, I am strongly in favor of a uniform standard for the different Provinces of Canada. We are all equally intelligent, all equally desirous of doing the best we can for the public for whom we work; and what is good for Ontario should be good for Quebec, or any other Province, and I think the standard should be uniform from the Atlantic to the Pacific.

DR. WOODBURY.—In reference to the matter in hand, Mr. Chairman and Gentlemen, I want to say that Nova Scotia is in thorough accord with this matter, and that for ten years it has been the subject of discussion in our Provincial Association; and

it has received serious opposition, almost all the time up till about two years ago. The opposition to Dominion Registration was mainly for the reason that it was thought perhaps the other Provinces which were filling up pretty fast with members of the profession, might, if the doors were open, overrun our Province. By way of parenthesis, I want to say just here that we are full down there. After continuously bringing the matter up and working at it in its different phases, the opposition has ceased. We have opened the doors long ago so that Ontario men can come in. I suppose—I do not know—perhaps there are two hundred or three hundred of them who can qualify immediately and register in Nova Scotia. Do not come; you will starve to death; but you have the privilege. One gentleman from Ontario did register, and practised in Nova Scotia for a while, but he has gone away again. He is now practising in Ontario. I would ask the Dean of the Royal College whether he knew that?

DR. WILLMOTT.—I have known that a graduate in dentistry of Toronto University could register, but not as an L.D.S. of Ontario.

DR. WOODBURY.—We would register a licentiate with a degree of D.D.S. We could not examine a man without a degree. I just spoke of this matter, to explain the position of Nova Scotia, as the question had been discussed.

DR. WEBSTER.—If we have a Dominion Dental Council and a Dominion organization, we may be admitted into the international dental congresses of the world. I tried to become a member of the Third International Congress, at Paris, two years ago. It was impossible for me to become a member of that Congress, and be a Canadian citizen. There was no provision made for Canadians becoming members of that Association; I had to get some person from the United States to recommend me for membership. We had no organization in Canada to do it, and we could not apply to get membership in that Congress.

DR. WILLMOTT.—Have they one in the United States?

DR. WEBSTER.—In Paris they did not know that Canada existed; that is the trouble.

DR. WILLMOTT.—That did not raise the dental question.

DR. WEBSTER.—Why, certainly. If we had an organization, such as we have to-day, they would have known we existed. They did not know then. In discussing this question with members of the British Dental Association, we have asked them to discuss the question of accepting our graduates in Great Britain by the General Medical Council. Many of them said, "You have so many conditions in Canada; you have so many standards, so many certificates, so much everything that we don't know what we are dealing with, or whom we are dealing with. But as soon as you organize into one central body, we will deal with that, and we can come to some arrangements that would be of advantage to us both, no doubt.



DR. OTTOLENGUI.—I think I understood Dr. Willmott to say that the United States had no federal body. Would you kindly tell me what you mean by that; we are under the impression over there that we have a national dental association.

DR. WILLMOTT.—That is an entirely voluntary association. It has no legal standing under the laws of the United States.

DR. OTTOLENGUI.—Is there any legal dental association in any country?

DR. WILLMOTT.—Yes; in every Province we have one. It is a matter of law.

DR. OTTOLENGUI.—We have them in New York State. I thought you meant a federal organization.

DR. WILLMOTT.—I think Dr. Webster was unfairly treated when he was not recognized; but I can quite understand it, because we had no Dominion Council.

DR. OTTOLENGUI.—The dental man from the United States have to have some delegateship from the national association.

DR. WEBSTER.—That is right; and it was the same in every other association, and there was none in Canada.

DR. OTTOLENGUI.—The American Dental Association of the United States is perfectly analogous to this meeting.

DR. WEBSTER.—That is the point. I can go to the United States, and from there become a member of the congress of the world, through the United States Association. Part of Canada is recognized as in the eastern section of the National Dental Association, and some of the dentists practising in the south-eastern section can get into the Congress through the doors of the National Association of the United States.

DR. OTTOLENGUI.—That is so.

DR. WILLMOTT.—You have annexed Ontario, I understand?

DR. WEBSTER.—I wish to say that the United States appointed three members; I think Dr. Gordon White, Dr. Brophy, and some doctor from New York, Dr. Walker, I believe, were the official representatives from the United States Government at that Congress. They had their expenses paid by the Government, too. Now, what did we get? They did not know we lived.

THE CHAIRMAN.—I would like to put the question, gentlemen, if you are ready for it.

DR. NOLIN.—Before you put the question, Mr. Chairman, I would like to say a word or two. I have been understood by a great many to be opposed to Dominion registration. I wish to be put on record, before we take a vote on this question, as not being opposed personally to the general organization of the profession, whether it be only this one association or whether it be legal. I differ from the gentlemen who were in favor of this organization only in the west, and do not think it in the best interests of the profession. As Dr. Ottolengui has just explained, the organization in the States is somewhat different from

the plans which have been suggested by some gentlemen here; and as I have told a great many, for my part the best way would be to begin with the Provinces, instead of having a Dominion Council, and even the standard of the Provinces, and have the Canadian Dental Association, which would not be a legal organization, but simply a professional one, to supervise the standard in the different provinces, and thus bring about what we might call a confederation of dental associations of the Dominion of Canada, when it comes to be recognized as a body by foreign associations. I think with such an organization as the Dental Association of Canada, those foreigners will probably find that Canada exists; and then those who have read of the royal reception that has been given to our Prime Minister in Paris, may infer that perhaps in the future the French people will know there is such a place as Canada. What I want to say is, I simply differ in the means of attaining the end, and as the proposition is worded, I perfectly agree with it.

DR. WILKINSON.—I would like to make a few remarks, Mr. Chairman. For my part I went to Nova Scotia in 1892. Dr. Woodbury has been many years working in the interests of the Provincial Dental Associations. In 1893 he presented his report. I graduated in Ontario, and I registered in Nova Scotia, on payment of the registration fee only. A personal friend of mine came to Toronto, and had to spend a year in college and had to pass an examination before he could practise.

THE PRESIDENT.—I would like to put the question, as it is getting late, if there are no other remarks on the subject. I move the adoption of the report that has been moved and seconded, if you are ready to vote.

Motion carried; report adopted unanimously.

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## MARITIME DENTAL ASSOCIATION.

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At a meeting of the above Association, in Charlottetown, P.E.I., July 9, 1902, Dr. Dubeau read an essay on "Identification of the Dead by the Teeth." (See page 18.)

### DISCUSSION.

DR. GODSOE (St. John, N.B.).—This is a subject of great importance. It has been my practice for many years to make a record of all my work as a dentist. By my chart I can do this with precision. Outside of the identification idea it is necessary for self-protection. Patients may drift away and come back to you and say that certain teeth had been filled by you, that the fillings had fallen out, and that they want them refilled. By a



reference to your chart, you can tell at once whether or not the particular tooth alluded to had been filled by you. I have been protected, and saved much mortification by my records. I am much pleased with this paper. We may not all pose as experts in the identification of the dead by means of our work on the teeth, but there is a possibility of our being called upon to give testimony in such cases at any time.

DR. THOMSON.—As one of the younger men of the profession I have been taught to make a record of all my operations in a diagram appointment book, and find it very convenient in many ways, particularly in those mentioned by Dr. Godsoe. This subject is especially interesting to me, on account of a very sad occurrence in the City of Halifax last year. An unknown woman who had just arrived in the city committed suicide by shooting herself at the Halifax Hotel. Nobody could identify her, nor were there any marks on her clothing or baggage which would afford a means of identification. The undertaker embalmed the body and placed it on view in his window, where it remained for a week or ten days, exposed to the gaze of passers-by, awaiting identification. I cannot say positively that no examination was made of the teeth, but certainly no particulars of such were published; and it occurred to me at the time, that had a diagram of the teeth showing operations which had been performed on them been published in the Canadian and American newspapers the chances for identification by some dentist who keeps a careful record of his operations might have been much better. Of course, these cases are very rare, but help to show of what immense importance is the matter of keeping accurate records of our operations, and diagrams of our patients' mouths. It is to be hoped that Dr. Dubeau's essay, to which we have all listened with so much pleasure, will be the means of making us all more careful in keeping accurate records of our work.

DR. WILLMOTT said that this subject was one of special interest and demanded serious consideration. There are one or two general principles underlying it which are of considerable importance. Of course, the condition of the teeth of a corpse, recognized by a dentist, depends upon the records kept by him at the time the teeth were operated upon. He could not depend upon memory for an identification, but he could depend upon records of crowned teeth or filled teeth. Such records would be beyond contradiction. This suggests to us the utility of such records, and the necessity of accuracy in connection therewith. The necessity for the identification of a corpse in this way may not often occur, but it may occur at any time. In some cases a reliable record of work done on the teeth would prove of prime importance. The acquiring of a habit by dentists of keeping an accurate record of their work should not be neglected. Some of my own dentist friends have been so constant in making such records that they

sometimes lose hours of rest in connection therewith. In the course of time such records become very valuable. Even after a body is burnt, the teeth will remain good and sound. In one case, in my own city, the body of a sailor was thus identified two years after death. My dentist friend was able to recognize his patients' teeth anywhere. If proper records were kept by all dentists all necessary information respecting the teeth of persons whose teeth had been operated upon by them could be secured. There is no need for the appointment of experts in respect to this matter.

DR. MAGEE.—I was taught to make a careful record of every piece of work. No matter how trifling may be the service performed, I record it, and I have found it to be of the greatest benefit. The patient may return from a visit to some other dentist after being treated by you several times, but your record will speak for itself, because a reference to that will determine positively whether the trouble complained of is with your filling or not. Should it be yours, the record will be of assistance in determining what to do. An accurate record is of very good value, not only for the identification of the dead, but as a means of saving time and trouble in everyday practice.

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### ANNUAL DINNER OF BISHOP'S COLLEGE, MONTREAL.

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The annual dinner at Bishop's College is always considered one of the happy events of the year. Nowhere is the visitor made to feel more at home, or entertained in right royal fashion, than in the historic old city of Montreal.

On November 6th, the faculties of Medicine and Dentistry of the University of Bishop's College held their thirty-second annual dinner at the Place Viger. The banqueting room and tables were very prettily decorated, and over two hundred guests partook of the good things of the evening.

The speakers of the evening included the Mayor, the Hon. Wm. Hingston, Hon. J. Israel Tarte, Rev. Dr. Whiting, Dr. W. H. Drummond, Dr. Butler, Dr. Grant Stewart, and many others.

The President of the Committee, Mr. Jas. Frankum, more popularly known as "Jimmie," in proposing the toast to the King, made a very brilliant speech.

Mr. W. W. Kelly, who in a very able manner proposed the toast to the Sister Universities, fully maintained his reputation for wit, humor, and repartee.

The Dinner Committee, as well as the Reception Committee, deserve the highest commendation for the able manner in which their part of the programme was conducted.



Although it was quite late before the guests dispersed, each felt that he had spent a very pleasant evening, and was "sorry to part, happy to meet again."

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## OFFICERS OF THE INSTITUTE OF DENTAL PEDAGOGICS.

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President, J. D. Patterson, Kansas City; Vice-Pres., H. B. Tileston, Louisville; Sec.-Treas., W. E. Willmott, Toronto. Executive Committee: W. H. Whelslar, Cleveland; D. R. Stubblefield, Nashville; R. H. Nones, Philadelphia. Next place of meeting, Buffalo, N.Y., Dec. 28, 29, 30, 1903.

The Faculty of the Royal College of Dental Surgeons was represented at the meeting by W. E. Willmott, who was elected Secretary of the Institute, W. Cecil Trotter, and A. W. Thornton. Dr. Thornton, in reply to the toast to Canada at the banquet, made a very acceptable speech.

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## Correspondence

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*To the Editor of DOMINION DENTAL JOURNAL:*

DEAR SIR,—Were it not for the odor imparted to the dental profession by the action of the Western Ontario Dental Association in connection with what may aptly be termed the "Coronation Advertising Episode," such a letter as Dr. Thornton's, with its inuendoes, its insinuations, and its pettifoggings, would be better left unnoticed. As it is, the time necessary for its analysis may not be unprofitably spent.

When I called attention, in August, to the anomaly of an active advertiser taking a conspicuous part at a meeting of a dental society, purporting to represent the best elements of the profession of Western Ontario, it was with the hope that some officer or member of the Association would be in a position to offer an adequate explanation of this most peculiar condition of affairs; or, failing this, that some responsible officer would make a manly acknowledgement of the mistake of the Society, when to all intents and purposes they endorsed the principle of advertising as exemplified by their acting treasurer, and thus atone in some degree for the grievous wrong they so shamelessly wrought the profession of which they all were members. But all who have the real interests of that profession at heart will regret with me that the only attempt at vindication has resulted only in aggravating the original offence.

Dr. Thornton does not question a single statement in my

letter, and thereby practically endorses all I have said. But here he plays the part of the pettifogger, claiming that he had no right to add names or to remove them from the programme, and thus implying that once Dr. Fear's name was placed on that programme, it was impossible to remove it. Does he suppose that the readers of the Journal are so simple that they will believe that there was no means by which the executive of the Western Ontario Dental Association could remove from their programme the name of a prospective participating dentist who had fallen from grace after it had been arranged? Whether this means existed or not, or whether the authority rested with the secretary or not, the fact remains that changes were made, as the second edition contained names not found in the first. Since names could be added, others could be removed, Dr. Thornton to the contrary notwithstanding.

He next endeavors to make a personal matter of the affair by referring to a letter he had from Dr. Fear, from which he "gathers that there was bad blood in Alymer," that his protege was "more sinned against than sinning," etc. Proceeding, he argues in effect that when a dentist cannot live amicably with the local members of his profession, it is right for him to throw his ethics to the winds, to advertise \$10.00 plates for \$6.00, to buy a hundred sets of teeth at about half price that he might give his "customers" the benefit of the snap, etc. (I like that word "customers"); and all this notwithstanding that the guilty person is a member and officer of several dental societies and consequently, above all others, responsible for the standard set by those societies for the common dentist to live up to. Dr. Thornton defends his fellow officer by that juvenile process of reasoning by which two wrongs make a right, and bases this not on the fact, but the mere supposition that some one else is just as bad as Dr. Fear. He jumps to this conclusion from what he gathers from that straightforward, manly letter over the signature of the author of those now famous (or infamous) advertisements which would make a common quack turn green from envy. Then again, if bad blood with a fellow dentist is sufficient to excuse ethical practitioners from practising unethical methods, it is probable that a large percentage of the membership of the societies could readily qualify as managers of New York or Boston dental parlors. Dr. Thornton is establishing an unsafe precedent, one, let it be hoped, that will not be endorsed by the rank and file.

It is to be regretted that the doctor has seen fit to make references to a "family quarrel," "bad blood in Aylmer," "the sinners and the sinned against," etc. What matters it that Dr. Fear has involved himself in a "family quarrel" and is now occupying the position of the under dog (as his advocate implies), and how does this justify him in violating the by-laws of the societies, or the societies in over-



looking his misconduct? The question to be considered is not "Who is right and who is wrong," but the broader and more important one, "What is right and what is wrong."

Considering the record the ex-secretary is establishing for himself by the part he is taking in this affair, one would suppose that he would be more careful how he referred to the past records of others. Since he has broached the subject and has asked you to investigate these past records, I am inclosing for your assistance in this work the photograph of a "straightforward, manly letter," which, by strange coincidence, is also over the signature of Dr. Fear. I would suggest that when you are through using it in connection with the suggested investigation, it be given a conspicuous place in the collection of monstrosities in the College museum, where it may serve to recall to the pathway of rectitude and virtue some wayward dentist who has a tendency to wander therefrom, but who is still capable of learning a lesson from the mistake and disaster of another. For there can be no doubt that this letter, written many years ago, was one of the first steps on that downward path that has led, among other things, to the unfortunate advertisements in question. And let it still further serve to emphasize the warning so well enunciated by Dr. Johnson in a recent address to a graduating class, to the effect that no man can practise trickery and deceit without experiencing in his own individual organization a corresponding disintegration of character and soul, which in the end can only result disastrously. For however successful, however powerful a man may appear before the world, if his character is undergoing this process of dissolution, due to the corroding influence of a false purpose, that man's position is fraught with peril, and sooner or later his house built on the sands will tumble about his ears, and he himself will be buried beneath the debris of his own pernicious designs.

I will also send Dr. Thornton a copy of this photograph to assist him in the judging of sinners, since he is taking this up, presumably as a sort of pastime or pleasure.

It is difficult for me to decide how best to treat that "stop thief" phrase, which, in this case, is so unclean that it leaves a stain even on the letter of which it is a part. But let us spread the broad mantle of charity over this and similar weaknesses of this peculiarly unhappy defence of an action which should never have even been condoned in the first place.

To make my position in this affair thoroughly understood, let me say that I have repeatedly declined invitations to join dental societies, because, in the execution of a task I have undertaken, I desire above all else that my hands shall in no way be tied. When this work is finished, which I believe will be soon, when the time comes that I can harmonize my personal interests with those of a dental association, I shall be glad to identify myself with it. In that case I trust that no act of mine will bring

the blush of shame or humiliation to the cheeks of my associates, and may they never be called upon to defend me against such charges as it has been my privilege to promulgate in this case. In the meantime I shall avail myself of any opportunity that may be presented by which I may promote the welfare of the profession of which I am proud to be a member.

Yours truly,

F. H. MILLER.

Aylmer, Ont.

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*To the Editor of DOMINION DENTAL JOURNAL:*

I have a point in practice that has been puzzling me very much and write to you to ask if you will be so good as to enlighten me if it is within your power to do so.

In two instances of late, patients have come to me with aching central incisor teeth with live pulps. In each case I applied the Funk method, and extracted the pulps painlessly, and put in a dressing of oil of cloves, instructing patient to come back in a day or two to have root canals filled. In each case the patient came back with tooth sensitive to pressure and a slight tendency to swelling above root, and ever since that the teeth will become sore if a dressing is put in tightly. The teeth act just like teeth which have been putrescent for some time, yet I am sure the pulps were quite alive, and I took them out fresh.

I do not think I infected them with septic broaches, therefore is not this behavior very strange? A reply will be greatly appreciated, as I know your time is very much taken up just now.

Yours respectfully,

R. PERCY FIELD.

Brussels, Ont., Nov. 6th, 1902.

[Will some reader of THE DOMINION DENTAL JOURNAL suggest a reason or explain why soreness sometimes occurs under such circumstances?—EDITOR.]

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*To the Editor of DOMINION DENTAL JOURNAL:*

DEAR SIR,—Please permit me, through the medium of the DOMINION DENTAL JOURNAL, to thank you and the many members of our profession for the kindly congratulations extended to me over the success of my recent law suit. I shall ever feel grateful for the friendly sympathy which my professional brethren have proffered. When I began the fight, I felt that I was alone. I had a chance to settle quietly at a small cost. But I took up



the cudgel for the sake of principle. I believed myself in the right, and I felt that truth must win. To have settled the affair quietly would have compromised not only myself, but the profession, and I fought the thing out at a much heavier cost than the proposed "quiet settlement" would have been. From the hearty congratulations I have received, I am convinced that I did the right thing, and to feel that I have gained the respect of the Ontario dental profession is to me more than time, and money, and nervous energy. Again please accept my sincere thanks.

Yours fraternally,

MALCOLM W. SPARROW.

Toronto, Dec. 12th, 1902.

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*To the Editor of DOMINION DENTAL JOURNAL:*

I suppose all of us who do plate work have heard this same old story. A patient returns complaining that her plate does not stay up, has not good suction. That is just ordinary trouble. What I call extraordinary trouble was when one of my patients returned, and said, "Doctor, this plate has too much suction; it feels as if it were pulling the eyes out of me."

Now, I have often noticed that when I hear of something entirely new, in a very short time I will hear of it again. In this case I thought, well, this is something unique; but within a few days I had just such another complaint, too much suction.

E. A. RANDALL, D.D.S.

Truro, N.S.

## TOPICAL SONG.

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Sung at Graduating Dinner, Royal College of Dental Surgeons, 1902.

If undergrads were all like us,  
How sweet this life would be;  
If Pharmacy would make less fuss,  
How sweet this life would be.  
If school and Meds would quit their fight,  
If Trinity their scraps would blight,  
If Theologs stayed in at night,  
How sweet this life would be.

If bridge-work we'd a chance to learn,  
How sweet this life would be;  
If special acts the House would spurn,  
How sweet this life would be;  
If Knapp would nap or hold his gap,  
If Pick would guard against mishap,  
If some one would the bell-boy tap,  
How sweet this life would be.

If Hassard weren't so hazardous,  
How sweet this life would be;  
If Sandy ne'er would vent a cuss,  
How sweet this life would be;  
If Scottie's voice should e'er get split,  
If Davy's chokers should once wilt,  
'F our lady should a Junior jilt,  
How sweet this life would be.

If we belittled little Sharp,  
How sweet this life would be;  
If Little were a little Sharp,  
How sweet this life would be;  
If swiping weren't each year the same,  
If our athletes could win some fame,  
If Juniors weren't so bloomin' tame,  
How sweet this life would be.



# Dominion Dental Journal

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## ONTARIO DENTAL SOCIETY.

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The regular annual meeting of the Ontario Dental Society will be held in the college building, Toronto, February 9th, 10th, and 11th, 1903. The details of the programme are not yet completed, but enough has been done to insure a successful meeting. Prof. S. H. Guilford, Dean of the Philadelphia Dental College, has consented to be present and deliver either two or three addresses on subjects without a knowledge of which no man should be permitted to practise dentistry. Dr. Guilford is known by a goodly number of graduates of the Philadelphia Dental College throughout Ontario. They, with many other friends, will be delighted to welcome such a distinguished educator. There is no dentist in America with a better knowledge of the subjects he will discuss, nor with a clearer or more forceful power of presentation. Dr. Guilford will discuss the proper occlusion of artificial teeth, referring to articulators, the proper selection of gold and porcelain as filling materials and useful hints in office practice. Dr. Gowan, of Creemore, will read a paper which will

call attention to a number of acts and expressions used by dentists which are not in harmony with or becoming to a profession. Dr. J. E. Wilkinson, of Petrolea, Ont., will present a paper on "Oral Surgery." Dr. Stanley Burns, of Smith's Falls, has been invited to give a paper. The names of the gentlemen to discuss the above papers have not yet been given out. The supervisor of clinics, Dr. C. E. Pearson, reports that the clinics will be good, and although varied, a special effort will be made to have as many surgical clinics as possible. The dental exhibitors have already taken up nearly all the valuable space in the building to show what is the latest in dental appliances. The addition to the college building will be completed in all its detail by February 9th, 10th, and 11th, and this will afford much more room for exhibits, clinics, and places for a social chat with old friends. This meeting will afford a good opportunity for the profession to visit the college since its enlargement. Every dentist should see the building he owns.

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### **TORONTO UNIVERSITY COURSE OF DENTISTRY AND MEDICINE.**

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The Senate of the University of Toronto has decided to give graduates in dentistry some credit for the work done in the study of dentistry, if they wish to proceed towards a degree in medicine in that University. Graduates in dentistry holding the departmental Junior Matriculation, or the University of Toronto Matriculation will be admitted to second year standing in the medical faculty of the University of Toronto, but will be required to complete the course in biology and physics, and pass the examination thereon before coming up for the final examination for the degree of M.B. By this arrangement candidates may graduate in both medicine and dentistry in six years.



# Dominion Dental Journal

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VOL. XV.

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No. 2.

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## Original Communications

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### SHOULD CHILDREN'S PERMANENT TEETH BE FILLED WITH GOLD ?

—  
BY RODRIGUES OTTOLENGUI, M.D.S., NEW YORK.  
—

Read before the Canadian Dental Association, September 15th, 16th, 17th, 1902.

At the recent meeting of the New Jersey State Dental Society I read a paper on this same topic. In the discussion which followed Dr. Jas. Trueman, of Philadelphia, and Dr. N. W. Kingsley, of New York, both expressed the view that I had merely been "threshing old straw," and that I had brought forward nothing new or of any value. It is, therefore, with some hesitation that I have accepted an invitation to present here practically the same views, with perhaps a few additions thereto. The current number of the *Dental Review* encourages me to believe that however threshed out the subject may be to the ears of our pioneers, the younger element may be attentive, even eager listeners to a discussion relative to the saving of the teeth of children. In the August number of the *Dental Review* a great deal of space is accorded to a paper and discussion on this subject, in the course of which Dr. Don M. Gallie is reported as having said: "I do not know of any subject which is more troublesome or less understood than the care and preservation of children's teeth, both deciduous and permanent." And Dr. A. H. Murdow says: "I consider the care of children's teeth one of the greatest subjects in dentistry." I agree with Drs. Gallie and Murdow, and I trust that this audience will not consider as untimely, the discussion which I hope to provoke.

One more word in regard to the "threshing of old straw." I was told by the gentlemen in Asbury Park that I was presenting nothing new. I cannot claim to have read every article in every magazine of dentistry during the last fifty years, never-

theless I have tried to be fairly abreast of the literature of my own years of practice. While there have been many papers dealing with the treatment and filling of children's teeth, if there has been even one advocating the almost exclusive use of gold, that publication has escaped my eye. And it is because of this, coupled with the fact that I shall argue for such utilization of gold, that I had supposed I was at least starting an old argument on new lines.

The question then is: "Should children's permanent teeth be filled with gold?" My reply in brief would be, "whenever possible." This phrase indicates that I recognize exceptions to the rule, and it is because of these exceptions that I must continue my argument. If all teeth, of all children, under all conditions should be, or could be filled with gold, I might simply state my advocacy of gold for preserving such teeth, and be seated. Here let me quote from my Asbury Park paper, since I can find no better terms of expression.

"In advocating the use of gold I stipulate first, that the circumstances of each case, including the control of the patient and the proper management of the cavity, must afford opportunity to insert a perfect gold filling.

"Second, that the demand for gold is imperative only in initial cavities, the pulps being alive and in a state of unimpaired health.

"Third, that the need of gold is lessened in proportion as the encroachment reaches, or destroys the pulp."

I will ask those present to keep in mind the above postulates which were somewhat overlooked at Asbury Park.

I desire at the outset to make the statement that the one unvariable feature of my practice during the past twenty-five years has been this rule, that children's permanent teeth should be filled with gold whenever it could be properly done. Furthermore, that at no time have I recognized that a difference in the structure of the teeth would demand a departure from the rule. The pronouncement made by Dr. Black some ten years ago, that in relation to the progress of caries there is no difference between hard and soft teeth, was one which I heartily accepted at once, but it in no way altered or affected my methods, because I had never believed that the so-called "softness" of teeth interdicted the use of gold. For years prior to Dr. Black's paper on this aspect of the subject, I had been filling the teeth of both adults and children with gold, whether hard or soft.

As this phase of the subject will probably excite comment, I will relate an argument made at Asbury Park by Dr. M. L. Rhein. Usually those who recognize the softness of teeth declare that because of that characteristic they should not be filled with gold. Dr. Rhein, on the contrary, says that abso-



lutely the only material which will save soft teeth, is gold, and with this view I am heartily in accord.

What is the argument usually offered in favor of other fillings by those who oppose the use of gold in soft teeth? They say that the tooth "is too soft for gold." What does this mean? That the tooth, being soft, should not be filled with gold? or is it that the tooth, being soft, it cannot be filled with gold? There being no virtue in the first claim, let us consider the latter. It is often argued that the force needed for the packing of gold will not be withstood by the soft tooth, and it is added, "a plastic filling can be utilized until the tooth becomes harder." Can it be? Let us see.

Undoubtedly there are soft teeth, that is to say, some teeth are less dense in texture than others. It is equally true that they may become more dense with advancing years. This lack of density of tooth substance is of two-fold character, however. The softness may be of the dentine, or it may be of the enamel. Lack of density of dentine may be overcome with advancing years, since the dentine is a product of the pulp. Provided, therefore, that the cavity has not reached a depth which would interfere with normal pulp function, the dentine may, nay, will, become more and more dense. But where is the relation between the density, or lack of it in dentine, and the insertion of a filling? Surely the weakest, or let us say the softest, dentine (the carious portions having been removed) will withstand the pressure needed for packing gold; and its softness or hardness has no connection with the recurrence of caries, since the influences operating to reproduce caries can only reach it through a defect along the filling margins. Now, we must note that the cavity margins are laid in enamel, and if the gold be placed tightly against the enamel, without fracture or disintegration thereof, either during or subsequent to the filling operation, caries cannot approach the dentine. Consequently we may exclude the softness of dentine as having no connection whatever with the choice of materials for filling.

We must consider then the alleged softness of the enamel. I am ready to admit that the enamel of one tooth, or set of teeth, may be vastly superior to that of another individual, but I am not ready to admit that poor enamel improves with advancing age. Defective enamel, enamel of inferior structure, is a finished product when we deal with it. The organ which deposited it has ceased to exist. It has a certain intimate connection with the living dentine below it, which causes it to lose something of its integrity with the death of the pulp and the consequent reduction of the vital forces in the tooth. But while by this means it may grow more inferior as the time passes, there is no cause known to me which will produce any improvement in poor or defective

enamel. Consequently, as good cavity margins and as good a gold filling can be placed against such structure at the outset as after any time of waiting.

If it be argued that soft enamel is more prone to decay, and that decay is more rampant during childhood, and that therefore the plastics should be used as a probationary filling, I must oppose the entire proposition. First, the soft enamel is not more prone to caries. Caries has been abundantly proven to be a chemico-bacterial process. It is the disruption of the normal relation of the various chemical ingredients of a tooth, and these are found to be in practically similar proportion in all teeth, whether soft or hard.

The question of filling soft teeth is therefore one of mechanics rather than of chemics. The dentist of the future must learn to fill soft teeth perfectly with gold, because gold is the only material which can be securely extended over a bevelled edge of frail or soft enamel, permanently preserving it against future fracture or marginal disintegration. Moreover, the dentist must learn to fill such teeth with gold in the mouths of children, for the very reason that caries usually being more rampant during adolescence only the most secure filling will preserve the soft enamel edges from fracture and consequent rapid recurrence of decay.

For the above reasons, as well as for the sake of appearance, nothing is permissible in the anterior teeth of children except gold, it being understood that in this paper, which is based on my past experience, I am excluding all consideration of porcelain. The common practice of placing gutta percha or oxyphosphate in approximal cavities in the anterior teeth, I consider most reprehensible. In ninety per cent. of all cases so treated the final filling of gold, if ever placed, is larger and more conspicuous than if inserted at the first treatment of the cavity. And in the other ten per cent. of the cases, where no enlargement of the cavity may have occurred, nothing whatever will have been gained. The above is the rule, exceptions to which, of course, will occur. Mainly these will be where for any reason the child cannot be controlled; the probational filling thus postpones the gold filling, until at an older age the child is ready to submit. But the necessity for such temporizing should be, will be, rare indeed in the hands of a man who loves children, and therefore knows how to deal with them, and this is a qualification which every young dentist should aim to acquire, since children will ever be the corner-stone of a successful practice.

Passing from the anterior to the posterior regions, we at once reach a class of teeth for which many will advocate the use of amalgam. There is no denying the usefulness of this much abused filling material, even in the mouths of children, but



I must contend that it has been utilized to an extent beyond its merits, and with most disastrous results. I have already stated that "the need of gold is lessened in proportion as the encroachment reaches or destroys the pulp." In other words, "the larger the cavity the less imperative the demand for gold." Conversely, I may say, "the smaller the cavity the less the excuse for amalgam." Yet, frequently we see it at the intersections of the sulci in lower six-year molars, or at the initiation points of caries in the similar situation above. Such work is very little less than malpractice. The patient applies for a filling which will "last," as he expresses it, by which he means permanency. Such fillings never have proven permanent, and in the very nature of the environment in which they are placed never will be. Recurrence of caries is almost a certainty. Why then this resort? Is it intended as temporary work? If so, it is equally bad practice, since gutta percha would be infinitely better.

No! I dare to tell you the truth about amalgam as it is used in children's teeth. Some may deny it, but the majority will inwardly admit the correctness of my words. With a limited few, who use amalgam intelligently, my statements, of course, will have no connection. Here, then, is the truth. Amalgam is used in the mouths of children for one of three reasons. First, as a means of doing "cheap work." Second, because it seems less difficult. Third, because, not being fond of children, the operator is either undesirous or incapable of doing thorough work. Now, I maintain, that an amalgam filling inserted under such conditions is never a good amalgam filling. Ninety-nine times in a hundred, the cavity is not thoroughly prepared; simply the actual caries is removed, and the easy amalgam paste pushed into place. Such fillings are practically never polished, or if a pretence at polishing is made it usually ends in a few revolutions of a finishing bur or stone.

A few words in relation to the reasons actuating the use of amalgam. As a means of doing cheap work; this is one of the greatest fallacies in dentistry. Amalgam is never a cheap resort, for adult or child, if it is to be properly inserted and finished. More especially, it cannot be counted a cheap process in the mouths of children, if any degree of thoroughness attend the method. In the first place, the cavity should be prepared with the same extensions as for a gold filling, since the preparation of the cavity is extensive in relation to the prevention of recurrence of decay, and this extension cannot be less for amalgam than for gold. Consequently, up to the actual insertion of the filling, the processes are, or should be, identical. The dam should be in place, the carious portions removed and extensions into the sulci or along frail margins conducted until thorough preparation is attained. Now, it is exactly this part of the work

which is the most difficult in the mouths of children, because of the pain, but we have shown that whether for amalgam or for gold thus far thoroughness demands exactly the same procedure, and it has been my experience, especially with the more sensitive class of teeth, that if the child will submit to a thorough preparation of the cavity, he will not seriously resist the insertion of a proper gold filling. The cavity then being prepared, may be filled with gold and finished at the same sitting. If filled with amalgam, a second visit for polishing is obligatory. Thus the so-called cheap filling demands two sittings, occupying in the end fully as much time as though a gold filling had been placed in one sitting. If the dentist is properly paid, he should receive the same fee, while the patient will have received at best an inferior filling. The subsequent polishing of an amalgam filling may be comparatively trifling where it occupies the occlusal surface only, but it becomes quite otherwise in approximal cavities, especially those involving the occlusal surface. Here we meet a great difficulty in properly polishing so as not to leave a space by destroying the contact-point. Often it would be requisite to separate the teeth after the hardening of the filling, so that we would need still another or third visit to obtain perfection for our cheap filling. And this, perhaps, is why so few amalgam fillings ever are polished properly, especially on approximal surfaces.

But I have admitted that amalgam may have a place in the salvation of children's teeth. The teeth of such young persons should never reach us in a pulpless condition, yet unfortunately we often find dead or dying pulps in sixth-year molars where the child is still very young. The proper cleansing and filling of such roots usually leaves cavities of such magnitude that it would scarcely be reasonable to expect the little patient to submit to such heroic treatment as the insertion of an all gold filling. So therefore, I admit that circumstances, especially the large size of a cavity, may render it advisable to use amalgam at times, but then it becomes needful that great thoroughness be observed, and properly conducted; the process is by no means a cheap one.

In regard to the other reasons for resorting to amalgam, I may only say that those who dislike to work for children, or those who select amalgam as an easy method, in the first case, should never be permitted to practise on children at all, and in the second are not likely to achieve successful results, since true success is never reached in dentistry along an easy road. Since I admit that in some instances amalgam should be used in children's teeth, it may be supposed that in such cases I consider amalgam is as good as gold. In such cases, yes! But that is because in such cases the obstacles would probably inhibit the ultimate of perfection in a gold filling. The long duration of



the filling operation, the restiveness of the child, difficulties of access in a small mouth would all combine to make the latter parts of the operation less perfect than it should be, and I am always ready to admit that a perfect amalgam filling is better than an imperfect gold filling. But it is the very rarity of perfection with amalgam that leads me to protest against it for young mouths.

And now I pass to the consideration of what I conceive to be the most important cavities which come to us, viz.: The initial cavities in the occlusal surfaces of the sixth-year molars. In regard to such cavities I formulated the following rules at Asbury Park:

"First, the cavity must be extended to the terminals of all sulci.

"Second, the filling must be made of gold, if it be possible to insert a perfect gold filling at the time.

"Third, the filling must be made of pink gutta percha, if it be not possible to insert a perfect gold filling. In rare exceptions oxyphosphate may be used.

"Fourth, the filling must never be made of amalgam."

It seems that I can scarcely express myself with too great distinctness on this subject. I supposed in my last paper that I had used language sufficiently clear, yet in the discussions men replied to my propositions as though I were entirely interdicting the use of amalgam, and demanding gold exclusively in all cases, whereas then, as now, I was alluding to what I have termed initial cavities in occlusal surfaces of sixth-year molars, that is to say, definite cavities, in definite situations, in definite teeth, at definite periods. I am now discussing the occlusal surfaces of sixth-year molars, which reach us when caries is either at its very inception, or at least in the earlier stages, the pulps being entirely unaffected. I trust I make myself thoroughly understood. These, then, are the cavities which I say should always be filled with gold, and never with amalgam. These are the cavities which, I repeat, I have always filled with gold, and never with amalgam; and these are the gold fillings of all others which have given me the greatest satisfaction and which have proven the most permanent in my practice. And it is this experience during a quarter of a century which leads me to defy the general tenets and to bid the rising generation to fill such teeth with gold just as soon as the opportunity arises, after the inception of caries.

Since I have taken up this subject and am advocating the use of gold in children's teeth, this being the second paper on the topic, I shall endeavor at some early period to prepare a paper especially devoted to the technique of such operations. I cannot adequately treat that aspect at this time, because I shall deem it needful to prepare numerous diagrams. But I will here touch upon one point which perhaps may be vital as explaining

such success as has attended my work. It has only been by accident that I have learned, and only recently, that my method of filling occlusal cavities differs from the generally accepted modes of work. Discussing this point with other practitioners, within the past year, I have been surprised to find that it is the common practice to treat these cavities just as all cavities are formed in relation to the margins. I am told that while cutting out and following the sulci lengthwise the cavities are also broadened laterally, so that when filled and polished the true margin of the cavity lies exposed adjacent to the filling material. This course is often the only one to be pursued when cavities reach us already broad in extent; but with what I am calling "initial cavities," cavities in the majority of cases where caries has not at all attacked the major portion of the sulci, the encroachment being solely at the deepest point, in such cases my procedure is different. The sulci in the main being undecayed, is opened solely because it is known to be a vulnerable area prone to decay, which if left unfilled will later return with decay around the filling which may have been inserted. These sulci then being free from decay, or in other words, the extension being into a perfectly healthy or only slightly affected area, the very smallest burs are used, and the cavities are cut to the extremes of the sulci, but as narrow as possible to thoroughly remove infected material and provide for retention. A filling inserted in such a cavity and polished down to the true cavity margins would appear, in a lower molar, as a narrow cross of gold. But my method of filling is to build up the entire concaved portion of the occlusal surface, so as to render the filling much too high. In polishing the cutting is carefully done to accommodate the occlusion without removing more of the gold than is absolutely necessary for that purpose. Thus the resultant filling appears as a broad diamond-shaped gold mass, of great strength. The main feature of this method is that the margin of the filling is now comparatively distant from the true margin of the cavity which it overlies, and, moreover, it is so extended beyond the cavity margins that the stress of mastication only makes it the more and more protective of that, the weakest part of the tooth, the point where we look for recurrent decay.

An analysis of this method shows at once my reason for absolutely discarding amalgam in such cavities. Amalgam may be harder than gold, but it is likewise more friable. In occlusal cavities it requires the safeguard of the cavity walls to preserve its own margins from fracture. Were it to be used as I use gold, the stress of mastication would soon chip the frail attenuated edges, thus inviting recurrence of decay.

There is much that I have said in my previous paper which I do not repeat here, since presumably both papers will be published, and repetitions are burdensome to our literature. Per-



haps some of the points may be brought forward in the discussion, in which case I will attempt a reply. In closing, therefore, I will merely make allusion to my use of pink gutta percha. I consider it a temporary filling, but I also count it the most reliable of all temporary fillings. I value it both for its reliability, as excluding caries, and its temporary character, wearing away under stress of mastication. Its reliability renders the tooth safe while it is in place; and its temporary character causes the early return of the patient for the final operation with gold. I use gutta percha in two ways. Sometimes the preparation of a cavity so tires a little patient that it may seem unwise to further tax his endurance by inserting the gold filling. Gutta percha is then inserted and the patient dismissed for a week. Secondly, the tooth or the patient may be so sensitive that full preparation of the cavity may be possible. The actually carious portions are then removed, and the gutta percha inserted for a few months, at the end of which time the original cavity is usually less sensitive, and the extensions into the sulci may be made. I might also mention that class of patients who follow the school term throughout the winter, and just before going away for the summer vacation, present with several cavities which cannot be filled with gold in the time that our appointments permit us to allot to the work. The caries may be thoroughly removed and gutta percha inserted, and during the subsequent winter the permanent fillings may be placed as time permits. Thus it will be observed that with me, gold is the reliance and is used at the first sitting in all possible cases. Gutta percha is depended upon for temporarily guarding teeth until such time when the final gold operation may be performed. Amalgam should never be used in initial cavities of decay, and is the resort of necessity rather than choice. The treatment of the bicuspid must be the same as for the anterior teeth, and the filling of the anterior teeth, more especially the incisors, with oxyphosphate or gutta percha I would consider an abominable practice, which sooner or later will be abandoned by all who aim to achieve the best in dentistry. (For discussion, see page 110.)

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## HOMEOPATHY IN DENTISTRY.

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BY J. D. TYRRELL, M.D., TORONTO, ONT.

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Read before the Toronto Dental Society, January, 1903.

In the treatment of the sick there are two things necessary to constantly keep in mind: first, there are no diseases, only sick people, and as a correspondence no true local disease, but local manifestations of constitutional disturbance; second, that no

sick person loses his individuality—his personality in all its hidden idiosyncrasies stands out the more marked in disease; therefore no two cases are alike. However, it is not my purpose to enlarge upon these points in this brief paper, but only to touch upon two conditions that cause my dental brethren much trouble, and in many cases putting onus upon them where they should have no blame whatever.

I shall only give a few remedies known to be useful to us, when given per oram in a diluted form, and I am sure will save you many an hour of anxiety when called upon to operate on people of hemorrhagic diathesis.

*Arnica Montana*: Where there is trickling of blood from the capillaries, never in jets; on wiping off the surface it is instantly covered again with drops of blood.

*Camphora*: Hemorrhagic diathesis; excessive bleeding from capillaries, without other predominant symptoms.

*Crocus Sativus*: Blood forms into long black strings.

*Crotalus Horridus* (30th dilution): Fluid hemorrhages from all of the orifices of the body, even oozes through the skin as bloody sweat.

*Trillium Pendulum*: Profuse, bright red hemorrhage, from cavity after extraction of a tooth.

*Hamamelis Virginica*: Passive venous hemorrhage after extraction of teeth.

*Sulphuric Acid*: Hemorrhage of black blood from all the outlets of the body; mouth, gums, etc. Patient is irritable and restless, must do everything with a rush—nothing can be done quickly enough by or for him.

*Phosphorus*: Hemorrhagic diathesis; any little scratch bleeds profusely and continuously. Hemorrhages profuse and frequent, pouring out freely, then ceasing for a time, only to return—very fluid and difficult to coagulate. Profuse, obstinate hemorrhage from gums, after extraction of teeth, so severe as to threaten speedy death.

These internal remedies will be found to arrest hemorrhages, when all so-called styptics fail, and much more speedily and permanently. There is another class of patient for whom the dentist has done good work—filling of teeth, the teeth filled ache viciously, and he is called upon to take out the filling and do his work over again—he does so, only to find the “aching void” again in evidence. What are we to do? The filling may be mechanically perfect, but as long as the ache continues your work will be rejected, and your reputation imperilled as an operator. Again the indicated, internal remedy will come to your rescue, and save extra work and needless worry. Give the remedy in doses, half-hourly, or quarter-hourly in cases of bad pain—every five or ten minutes in the hemorrhagic cases.

*Arnica Montana*: Toothache after operations, plugging, filling, etc.



*Nux Vomica*: Aching in filled teeth, in dark, thin, irritable people, high livers, malicious, spiteful dispositions.

*Dioscorea Villosa* (wild yam): Sharp, aching pain in filled teeth, as if the bare nerve were touched.

*Cicuta Virosa*: Toothache, faceache, caused by filling the teeth with gold.

*Protoiodide of Mercury*: Toothache after filling.

*Chloral Hydrate*: Odontalgia traumatica from pressure of filling, unbearable, and worse lying down.

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## PRESERVATION OF SUCH ROOTS AS ARE USUALLY CONSIGED TO THE FORCEPS.

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BY JOHN E. WILKINSON, M.D.S., D.D.S., TORONTO, ONT.

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Read before Canadian Dental Association, Montreal, Sept. 15th-17th, 1902.

*Preservation.*—To preserve is better than to destroy, provided the thing is good. The amputation of a diseased hand or even a finger if restoration to health were possible, would be criminal. So also is the extraction of a tooth capable of preservation in health and usefulness. Whatever assists in maintaining the general health and comfort, whatever has a part in producing beauty, symmetry and grace of form and feature, is worthy of accomplishment. The dental organs perform so important functions, and affect in so large a measure the general appearance, that their retention is of great importance. This general principle of preservation is one upon which all dentists are agreed. It would be hard to conceive of greater variance in methods of practice than exists in our profession. It may not matter how we do, as much as what we do. If the purposes are right, the means safe and effective, and the results successful, then true principles must have been employed. New ideas or new applications of ideas are constantly being presented. It is well to keep in the forefront of the advance and occasionally lead, but all new ideas do not lead in an advance, many when followed lead in a retreat. New ideas should be welcomed on probation, where they may be well tested, then and only then accepted or rejected. A man who deserves to be called a "back number" is in a class to be pitied. A still more pitiable class is one represented by an unbalanced, light-headed upstart. He is quite as useless, and at the same time much more dangerous. Some old ideas are good and best. The moral code of Moses, of over thirty centuries ago, is ahead in some respects of our present times. Shall we not hold fast all old ideas worth holding? Shall we not test all new ideas

and grasp all that can, to advantage, replace or assist the old? With all the diversity of methods, means and operations, there is an increasing tendency toward crystallization into definite general principles, which will bring about increasing and beneficent uniformity.

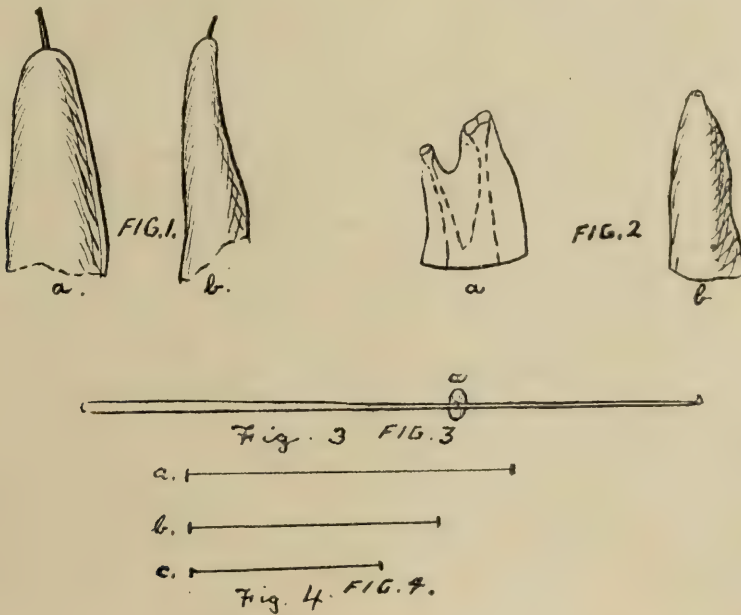
*Opposition to Extraction.*—Extracting should be resorted to only when necessary. How many teeth are extracted just because the patient requests it? The general surgeon would hardly amputate a finger having a painful felon just because the patient asked for it, to relieve immediate pain. Let us more than ever oppose extracting, and favor restoration to health, of all diseased conditions. Teeth and roots which in themselves or their surrounding tissues cannot be so restored, may be extracted. To even this there are some exceptions. Such as may be retained without any advance in disease, and those which, while becoming increasingly diseased, are moderately useful and harmless; these may be kept.

*Losses Due to Extracting.*—The loss of teeth produces disfiguration which cannot be completely obliterated with the most skilfully constructed substitutes. The power of mastication is greatly reduced. Dr. G. V. Black is authority for the statement that while with the natural teeth one can produce a biting pressure of 200 lbs., with the artificial a good average does not exceed 40 lbs. Certain substances, therefore, cannot be properly masticated. Artificial appliances, plates and bridges, are an interference with nature. Sometimes the one, and sometimes the other, is the less harmful, and, when needed, better form of substitute. The extraction of one molar from a complete set means the loss for mastication of two molars. A dentist of my acquaintance recently had a patient apply for extraction of thirteen lower teeth, only four of which were decayed. He explained and reasoned. She pressed for extraction. He refused. She left, and probably had her wish gratified elsewhere. The dentist first consulted, lost some time, but retained a clear conscience. Perhaps to-day that very lady, with a slight lineal ridge, bearing a heavy, well-plumpered lower denture, is paying dearly for having her own way, and wishes she had taken honest advice. What are you going to do where patients will not have anything done but extraction, and who will not, or cannot pay for professional services? Explanation, management and tact will in many cases gain a victory. As to remuneration, I consider it less unprofessional to do humane service at a low fee or for no fee, than to do a permanent injury. The writer has filled cavities for even nothing rather than extract. Some of such patients never even were thankful, but some again are now having all their teeth preserved and are paying for the service rendered. Not only that, but they in turn influence others. Numbers of those to whom the fee should not be a great consideration require educating.



For the very poor, there is need of public dental hospitals, not entirely free, open the year round, for poor school children, and for adults. Canada and the United States are behind some European countries in this regard.

*Plea for Preservation.*—Our special plea is for the retention of a great proportion from among the numbers of teeth and roots now being removed. Permit an assertion. Fully ninety per cent. of those now being extracted throughout Canada could be retained in, or restored to, comfort and usefulness for periods of from five years upwards. We recognize the marvellous results attained by the dental profession to-day, but are all, or any, doing all that can be done? The ten per cent. proportion, the removal of which may be justified, contains the following classes: (1)



Teeth and roots having abscesses which will not yield to treatment; (2) those in areas of necrosed or carious bone which cannot be restored to health while they remain; (3) such as have excessive absorption; (4) any so frail from decay as to be useless; (5) certain third molars, malposed, overcrowded or excessively chalky; (6) teeth, the removal of which is in the interest of orthodontia; (7) those permanently loosened from pyorrhea or recession; (8) many solitary teeth where artificial dentures are necessary.

*Acute Abscess.*—An extensive acute abscess in itself does not indicate removal of tooth. Such a condition will subside. There it a vital activity which, with removal of the cause, stimulating and antiseptic care, will induce complete restoration to health in a majority of cases. With molars there are most failures. If the abscess points, or if an external opening be made with the lancet, treatment will be much the same as for a tooth having fistulous opening. Frequently, though, the swelling is extensive.

deep and hard, with no inclination to point. General treatment to lower the blood-pressure will help. The canals should be judiciously opened. Gentle rubbing and pressing will assist toward activity, so will counter-irritants. While the tooth responds keenly to the touch, only very moderate canal treatment is wise. Palliative agents, as campho-phenique and menthol, are best. Chloroform and cocaine may help to give immediate relief. The canals are left open till the inflammation has somewhat subsided. Roots of this class should not be filled permanently until well tested and after about four weeks from the time of first being sealed up.

*Chronic Abscess.*—A chronic abscess with a fistula is usually a condition favorable for successful treatment, especially so with roots of anterior teeth. Treatment may be thus outlined: Cleanse canal with hydrogen peroxide. Remove the contents. Work up to, and through the apex with broaches, a fine Donaldson hook, having the hook snipped off, followed by a spiral broach. With a hypodermic force warm water into the canal and out through the fistula. Follow up with creosote and force through. Place in a temporary dressing. The following day cleanse, flood the canal with a good antiseptic agent, dry, and fill at once. In a molar, with a probe find which root the fistula is from, if only one. Treat as described and fill that one root. Treat the remaining canals and fill later. Be careful to avoid trouble about the antrum.

*Necrosis.*—Necrosed bone about or above a root or roots is readily detected by means of a probe. Treat the canal. Fill on the second day. Further treatment may all be given through the fistula.

*Maxillary Caries.*—Cariou bone is sometimes found, and in quite extensive areas, extending from about the upper teeth through the palatal process to the septum. Treat the canals and fill at the second sitting.

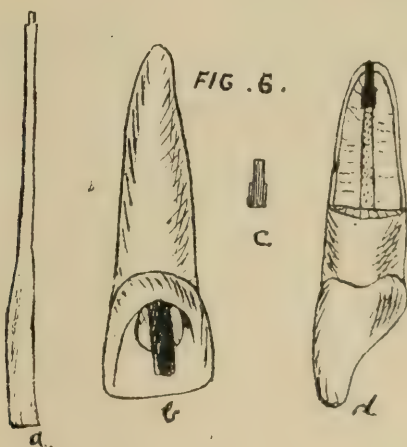
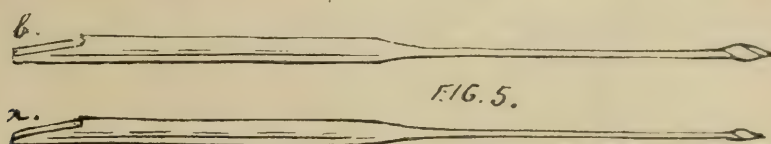
*Treatment.*—With necrosed or carious bone, or long-standing fistulous opening, treatment, outside the filling of canals, is surgical. The area should be well explored and examined with a probe. Employ the hypodermic syringe and force warm water in and out, followed by creosote or carbolic acid. I prefer not using hydrogen peroxide in most cases, as it often causes severe pain and sometimes trouble by getting into pockets or occasionally into the antrum. Carbolic, while effective, is severe on soft tissue externally. A good, clean, sharp, round bur in the engine may now be inserted through the fistula and run rapidly but cautiously, cutting about the diseased area. Nitrous oxide will render this procedure more humane, especially in carious surfaces. The hypodermic may again be used for washing with a solution of boracic acid, or carbolic, or perhaps weak aromatic sulphuric. Generally, with this freshening, there will be complete recovery,



just as from an ordinary wound. If there is much necrosed bone it should all be drilled or cut away. In this or extensive caries the wound may need packing with gauze or cotton. If not, it will still need successive treatments during repair, using stimulating and antiseptic agents.

*Amputation of Roots.*—A root, the apex of which is considerably absorbed or roughened, may have the end amputated, the tissue about being freshened by the process of drilling. Creosote may be forced through, then on the following day the canal may be filled.

*Broaches Broken Beyond Apices.*—Accidents happen in the best regulated dental offices, and at the hands of the best operators. One occasional mishap is the breaking of a nerve-broach with end protruding beyond apex. (Fig. 1, *a*, *b*.) If trouble and



soreness follow, and the operator is sure of the character of the condition from measurement or X-ray examination, a remedy is looked for. The writer had experience with two cases. In the first extraction and replantation were resorted to. Result: absorption of the root, and loss after two years. In the second case the canal was filled, an opening was made through the soft tissues, then with a round bur the process was penetrated, and the bur run rapidly upon and over the apex. This was done on May 19th, 1901, and resulted in relief from pain and recovery. The case had an interesting history. An interval of a year and a half had intervened between the time of the accident and the treatment described, during which there was constant soreness and occasional keen painfulness.

*Roots Having Large Apical Openings.*—A class of roots difficult to deal with, particularly in filling canals, is of those with large apical openings. (Fig. 2, *a*, *b*.) Palatal roots of upper mo-

lars, distal roots of lower third molars, imperfectly developed roots, and roots with apical absorption, these most commonly present this difficulty. It is very hard to fill up to the apex and at the same time not beyond, with any kind of filling material. Cotton can here be readily inserted, but no matter how well introduced there will eventually be permeation of fluids sure to become septic when stagnant. Gutta percha cones may protrude, so may Hill's stopping. The materials of creamy consistence are not satisfactory. They either flow beyond or leave the sharp margins as an irritant. With any material, to obtain a result at all near accuracy, a measurement is necessary. This can be obtained by using a Donaldson hook (Fig. 3 *a*), with a rubber washer to mark position where hook catches when withdrawing. The length may be marked on a card for reference. (Fig. 4, *a, b, c*.) One method of measurement I heard about was by twisting cotton fibres about a broach then working up till a blood stain appeared. This might be gotten when half way up the canal, or not till beyond

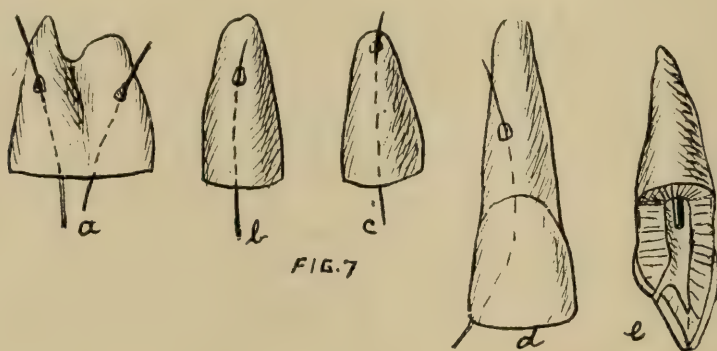


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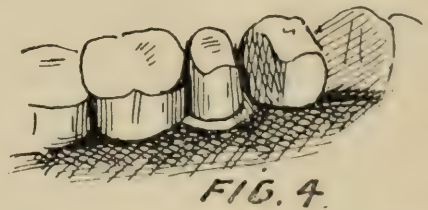
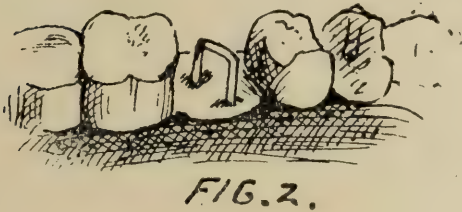
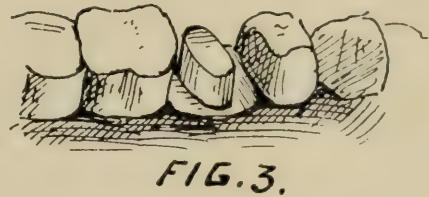
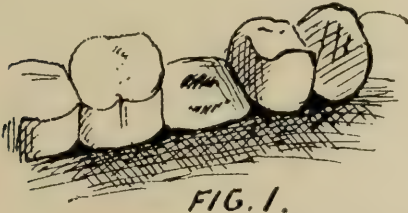
the apex. For accurate filling of such canals, the best and only satisfactory method the writer has learned, is by the use of a specially prepared tin plug. Two sizes of Gates-Glidden drills (Fig. 5, *a, b*) are used, the smaller going right through apex, the larger to within one-sixteenth or so of opening, thus forming a shoulder. A similar hole is drilled in a piece of ivory. Another hole of the larger size is drilled clear through. By these a tin plug is prepared and drawn which will accurately fill the canal to the apex, but not beyond. About three-sixteenths of an inch of the end is cut off, forced to its place at the apex, the remainder of the canal being filled, or prepared for a crown-dowel as required. (Fig. 6, *a, b, c, d*.)

*Teeth Decayed Beyond Bifurcation.*—Teeth decayed beyond the bifurcation will often prove useful and permanent tenants. The canals are treated and filled as indicated. The exposed soft tissue may be properly dressed, then over, and in contact with it, place a layer of tin-foil or of platinum. A floor of amalgam is worked over this, to be supported by the walls and ends of the roots. The filling is finished as desired, being retained by posts from the canals or undercut in the walls or root-ends.



*Perforation.*—Roots having accidental perforations from the use of canal drills often give trouble, but may usually be saved. (Fig. 7, *a, b, c, d, e.*) Just here allow a protest against the abuse of canal drills. Their use is valuable but limited. They should never be used in opening up putrescent pulp canals. After thorough medication and successive treatment, they may be used, but even then with care. They are very often deflected, so that one can never afterward get a broach into the canal proper beyond that point. Where a perforation has unfortunately resulted, cleanse, apply aristol and oil of cloves, then, if possible, place a layer of tin foil over the opening and fill carefully with amalgam. Treat the canals afterward and fill carefully. A perforation of some standing demands more patience and successive treatments to allow subsidence of tenderness and inflammation.

*Separate Roots of Molars and Bicuspsids.*—Separate roots of bicuspsids and molars are not to be despised and wantonly destroyed. If their attachment is firm, absorption not excessive,



and the walls not too frail to support posts and filling material, they may be treated and restored by filling, banding, or crowning. Roots of lower molars are sometimes best restored separately. Generally the roots are bridged together with a layer of foil over the gum and built up with amalgam. (See figures 1, 2, 3 and 4 above.) Where one or two roots are loose or useless, a single remaining firm one should be restored.

*Frail Anterior Roots.*—Frail anterior roots with one or more walls broken down below the gum margin should be restored and crowned if possible. A plate or bridge is thus avoided, while appearance and usefulness are regained. Such roots when crowned and having their functional activity restored, are stronger and healthier in their sockets than when idle. One method of procedure is the following: Fill the apical opening; screw in a threaded post, build up with amalgam to within one-sixteenth of the gingivus, the post then extending one-quarter of an inch beyond. A band, cap and cylinder adapted to the root end and

post are prepared and soldered. Fuse a porcelain crown, or grind a facing, back and solder; then insert.

*Deciduous Teeth.*—Preserve deciduous teeth so far as possible till the time for their natural replacement.

The character of every individual dentist goes to raise or lower the standard of our profession. My slovenly, unhonorable work may help my neighbor, but it injures dentistry. Accuracy, thoroughness, persistence, knowledge and experience are all required, together with a good conscience. To preserve and restore teeth upon the natural roots to health, comfort, good appearance and usefulness to the farthest possible limit is a worthy ideal.

No claim is made to originality. The ideas very inadequately expressed have been obtained and incorporated in practice from experience with a good perceptor and at a reputable college, from dental literature, attendance at conventions and society meetings, from association with dentists and from personal experience and investigation. The personal experience has much of it been disappointing, much eminently gratifying. (For discussion, see page 122.)

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## DON'TS IN CEMENT FILLING.

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BY DR. W. B. AMEY.

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Read before the Toronto Dental Society, November, 1902.

- Don't use cement for filling without the rubber dam.
- Don't remove overhanging enamel.
- Don't allow any moisture in cavity on slab or scapula.
- Don't use excess of liquid or powder.
- Don't be careless about shade.
- Don't remove dam until cement is hard.

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## DON'TS IN GOLD FILLING.

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BY R. G. McLAUGHLIN, D.D.S., TORONTO, CAN.

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Read before the Toronto Dental Society, November 1902.

- Don't attempt a gold filling where you haven't access to every part of cavity.
- Don't use a plugger point that gives anything but a direct blow.
- Don't attempt a gold filling in a tooth that is void of proper support, natural or artificial.



Don't forget the burnisher plays an important part in finishing a gold filling.

Don't endanger cutting edge of incisor for sake of anchorage, rather grove toward pulp chamber.

Don't get it into your head that a porcelain inlay is a good substitute in the majority of cases for a gold filling—it is not.

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## FIVE DON'TS IN ORTHODONTIA.

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BY H. E. EATON, D.D.S., TORONTO.

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Read before the Toronto Dental Society.

Don't attempt a case of orthodontia if you cannot seriously give it the necessary time and consideration

Don't subject a child, say of eight years, to an operation that could as well wait until the age of fourteen or sixteen has been reached, just because it is an interesting case, and you are anxious to get at it.

Don't commit yourself to too many definite conclusions as to method, time, and cost of an operation, at the first examination or interview with your patient.

Don't become wedded to a few stereotyped appliances to meet all cases that come under your notice, thus dwarfing your inventive faculties. Rather handle each case on its own merits.

Don't fail to get and preserve models of your case at the various stages of the operation. They will prove a satisfaction both to you and your patient.

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## DON'TS ON EXTRACTION.

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BY T. HENDERSON, D.D.S., TORONTO.

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Read before the Toronto Dental Society.

Don't fail to have your instruments thoroughly sterilized before extracting. Better boil them.

Don't have to look for your instruments under an anesthetic when you want to use them.

Don't have your patient in a recumbent position under nitrous oxide gas when extracting.

Don't extract lower teeth first if you have upper teeth to take out at the same time.

Don't proceed to extract if you let a root or tooth drop in the mouth until it is removed.

Don't be afraid to go up into the process at once for roots under an anesthetic, and lose no time.

**HENDREN VS. SPARROW.—JUDGE'S CHARGE.**

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MORGAN, J.: The plaintiff in this case has brought an action against the defendant, who is a dentist, carrying on business in Parkdale, as I understand, and complains when he was performing a dental operation in extracting her teeth, he either negligently or unskilfully, or in some way, about which we have no knowledge given in evidence, allowed a tooth, or a portion of a tooth to escape from his control. This tooth passed down into the organs of breathing, and somewhere in the region of the lungs. The precise location of the tooth was not ascertained, but it gave her trouble for about a month, and ultimately she coughed it up, and, being relieved of the irritating substance in the breathing organs, she recovered from the illness. She says her illness was caused by that tooth being allowed to get down, wherever it did go, and she and her husband bring an action now against the defendant for compensation. The husband claims damages for the expense he was put to for medical attendance and care on his wife, and for the loss of her services and society, and that sort of thing, while she was ill. The wife, I apprehend, claims damages for herself only in respect of pain and suffering she endured, because she is not at all affected permanently. I have reserved for argument of counsel, in case it should become necessary, certain questions as to whether or not there is sufficient evidence of negligence, according to law, to submit the case to you, and those I will determine later on. That being the case, I have not deemed it prudent to allow you to bring in what is called a general verdict, namely a verdict for plaintiff, or for defendant, but I have asked you to answer four questions, and upon your answers I will be able, applying the law, to give judgment for either the plaintiff or the defendant. The questions I will put to you, I may say, are these:

1. Did the tooth which the plaintiff coughed up get into her breathing organs at the time of the operation by the defendant, or is it equally consistent with all the evidence that it got in at some prior period?

2. If it got in at the time when defendant was operating, did it do so in consequence of the defendant's negligence or want of skilfulness?

3. If you find negligence or unskilfulness,—in what did that negligence or unskilfulness consist?

4. If you find defendant liable,—assess the damages you think the plaintiff entitled to,—stating amount to the husband and wife, respectively, in separate items.

Perhaps the first question is the most important one to be answered, because it underlies the whole subject-matter of the controversy between the parties. Let us see what the evidence is: This lady went down to have some teeth drawn; she said twelve teeth and two roots. There were some little negotiations.



about the medical man who was to administer the chloroform, and there is no dispute that she was quite agreeable to have it administered by Dr. Hart. At the time she went there she had been for some time troubled with bronchial asthma, which was accompanied, at any rate, by a cough. She says, however, that for a couple of months before she went to the defendant she had been in an unusually fair state of health, and had not been troubled so severely with the asthma and bronchitis as she had been previously. She went to the dentist, accompanied by her sister. The chloroform was administered, and the operation performed. She knows nothing at all about the operation itself, and that is all we are concerned with, because no harm was done by the chloroform. The only harm that was done, if any was done at all, at that time, is either from the doctor's bungling or being careless, or that something happened over which he had no control, though he may have exercised perfect carefulness and skill—because accidents will happen,—and this tooth got down. That she knows nothing about, because she was under the anesthetic, and had no knowledge of what was taking place. All she can say about it is that, having gone through the operation, and having been restored to consciousness, and having remained resting in the doctor's office for a sufficient length of time to enable her to get over the effects of the chloroform, and to walk with reasonable steadiness, she left for home. She says she was troubled with fits of coughing in the doctor's establishment, but not so badly as afterwards, and that when she started for home she found distress in the region of her breathing apparatus, and otherwise, and if she had not had the baby carriage to lean on she would not have been able to get home. Some time after she went home she was taken ill, and violent coughing ensued. Her illness progressed, and eventuated in inflammation of the lungs, pneumonia she called it, and finally developed into sympathetic pleurisy. This continued for a month, during which time she had careful medical attendance, and at the end of about a month, in a fit of coughing, up came a tooth, which tooth she has produced and filed here as an exhibit. It is said by her and her mother, who was present when the tooth came up, it was covered with a mucus, a frothy covering, a sort of incrustation of sticky mucus. Dr. McConnell also saw it shortly afterwards, and describes the condition of the tooth. I think there is no doubt, at least there is nothing to the contrary, and we have to believe what those two ladies say, that she did cough that tooth up. She is quite certain that she had twelve teeth to be pulled, and two roots. She was unable to give us a very accurate description of where these teeth were located, how many were in the upper jaw, and how many in the lower jaw,—that may have been want of memory on the subject,—and no other person on her part has to speak of the teeth that were to be drawn at that particular time. That is all that she can tell about the facts of what took place, at the time that these were being extracted. The sister said

that she, being present with the plaintiff, was in the room during the time that the anesthetic was administered, and during the time that the teeth were being drawn, except during one or two intervals, when she went out to look after the baby or to quiet it. She is not able to give us any particular history of the extracting, she does not give us any indication of any negligent conduct that she observed, or any roughness, or want of skilfulness on the part of the doctor. That is to be expected, she would not have any very great judgment about those things, and unless the doctor was very rough or very bungling, it would escape her notice if there was anything wrong about the way in which he was performing his work; but she does say that at one time during the progress of the tooth-pulling there was a disturbance of her sister's condition, her face became black,—well, of course, she does not mean that literally, it is the ordinary way of describing that peculiar complexion of the face that is seen when people have a violent fit of coughing, or choking, or strangulation,—and there was a gurgling, choking sound in the throat, and that is all the incident that she is able to mention occurring out of the ordinary that came to her notice during the progress of the operation. Then she tells us that her sister did some coughing in the dentist's office, and that the coughing increased, and she found it very difficult to get home, and that after she got home she was ill in the way she has described, and remained ill for the length of time stated. Dr. McConnell then gave evidence, that when he was first called in he thought she was suffering from the old complaint of bronchitis, which was possibly an accentuated attack of the old complaint, and he treated her for it; and then he says it developed into pneumonia and inflammation of the lungs, and of the bronchi. He says the presence of the tooth would cause that disturbance. Upon cross-examination, he says in the woman's recumbent position described to him, and under all the surrounding circumstances, it would be difficult for the tooth slipping from the forceps, to get into the larynx; it would naturally go down the gullet. Of course, he says that it might, if there was at the time it slipped, a violent paroxysm, a cough, or a very strong inhalation of breath, perhaps be drawn up into the larynx. He says he has always understood the defendant to be a skilful and careful man in the performance of his work as a dentist. Then the mother is called, and she knows nothing at all about the operation; she was not there, and all she can speak of is as to her daughter's condition when she returned home. She says she could hardly stand, and she was choking and coughing, and coughing up blood; and then she tells you on the 2nd of July she coughed up the tooth produced. It was covered with mucus, and that after the tooth was coughed up her daughter rapidly recovered. Mr. Hendren says the same thing, only he says the coughing was not very apparent, nor apparently very distressing until some hours after her return home; in fact, not until after she had retired to bed, and then it became



very acute and very distressing, and the next day the medical man was sent for. That is all the evidence offered on the part of the plaintiff in chief, from which we can reach any conclusion as to whether or not the tooth went down into her breathing organs at the time of the operation. There is a piece of evidence which appeared later on in the trial, and although it does not in any way whatsoever throw any light upon the fact of whether the tooth went down or not, if it be absolutely true, to some extent, and to just exactly what extent you think, it breaks the force of the doctor's own testimony. The doctor says in his evidence, given from his own lips before you, and in the evidence produced upon his card, that of the twelve teeth which he says he extracted, including one root, he extracted from the upper jaw six or seven teeth. The card is there, and you can see he has got a blue pencil cross opposite the front teeth in the upper jaw. The plaintiff produced a plate of artificial teeth, and that plate contained the three front teeth, and a plate where she says the fourth front tooth was, and that plate, she says, she has been using for some years, and I think she said was using up to the time when the operation was performed. If that is true, then those are false teeth occupying the place where the dentist says he pulled out the front teeth, which would be impossible. If she had been wearing that plate of front teeth up to that time, then it seems to me perfectly apparent that the doctor is in error as to how many front teeth he pulled. That is all the evidence offered on the part of the plaintiff, and you will see from that that there is not a vestige of direct testimony showing that at the time of the operation that tooth went down the lady's throat. What we are asked to do is to reach this conclusion: We are asked to say that it must have gone there, because she subsequently coughed it up; that it must have gone there because immediately after the operation she felt distress, coughing, and the symptoms became acute, and remained until she coughed it up, and we are asked to say it got there because the doctor says it would produce that effect if it went down. Nobody saw it go, nobody saw any unskilfulness. The plaintiff cannot complain of unskilfulness, of course, because she could not know. Her sister could not complain of any unskilfulness, so far as she saw, except she saw this choking and darkening of the complexion while the operation was going on; but nobody is able to say, as a matter of fact, that she saw any bungling, the result of which bungling would naturally send the tooth down, or that she actually saw the tooth slip off the forceps and go down. That is the plaintiff's case.

The dentist says the first part of the story is all right. He says that the lady was put under chloroform, and "When she was in the proper condition I extracted the teeth. I did it in ten minutes; that is not an unusually short time; any skilful dentist can do it easily under ten minutes. There was no haste about my operation; it took a good deal of chloroform to get her into

a state of unconsciousness sufficient for the purpose. The first two teeth I drew were in the lower jaw; the crowns were badly gone, difficult teeth to get hold of—one was practically a root. I took pains over those two teeth, because I wanted to extract them carefully, as they were frail, and I wanted to get them out entire without breaking them. I succeeded in doing so, but it took more time for those two teeth than it otherwise would have taken if I had been able to get a good grip on them. That necessitated a renewal of the anesthetic, so as to produce the proper state of unconsciousness for me to finish the operation; but even with those little delays ten minutes was not too short, and any skilful dentist ought to do it in that time.” Then he goes on to say he pulled only twelve teeth; there were not twelve teeth and two roots; there were practically eleven teeth, and one of the lower teeth was a root, and he marked them on his card. He says he keeps those cards, not in this case alone, but in nearly every case, and he has a package two or three inches thick at home. Some comment was made, Gentlemen, of the Jury, during the address by counsel for the plaintiff, that it would have been well if he had brought those cards and exhibited them to you. I am bound to tell you that he was not called upon to do that, and his counsel would have been in error if he had told him to do that, because if the plaintiff had brought those cards down and offered them in evidence I would have been bound to say they could not put them in. You will recollect when it was suggested to put in the cards with reference to the boy there was some objection to that effect taken, but, under the circumstances, I permitted them to go in; but as to putting in the cards of all the other patients he had operated on, they would not have been admissible at all. He might have brought them down and laid them on the table, and said, “You can look at those if you like, and see this is my ordinary way of doing business,” but they could not have been offered in evidence. He tells us that the practice of most good dentists is to keep those record cards. Those record cards show twelve teeth pulled. He says he performed the operation skilfully, perfectly satisfactorily. He says he put the teeth partly on a napkin laid in front of the lady’s dress while the operation was going on, and partly on a piece of oilcloth, which was in the close neighborhood of the operating chair, and immediately after she had gone he got the teeth together and took the record card and marked on it with a cross the teeth he had extracted. He says he could not make any mistake; it was within an hour after the operation, and he swears the card is perfectly true. He says he did not let any tooth slip and go down her throat, and it is not possible that it could have happened. He says he does not do what some dentists do, use an elevator; he does not like it. I should be inclined to think that that lifting-up machine would be more apt to be dangerous in the way of letting teeth escape, than using forceps, because if the dentist gets a grip on



the forceps strong enough to get the tooth out, the tooth would remain in the jaws of the forceps until he takes it out himself, unless through some accident the forceps slips; and he is perfectly satisfied in his own mind no accident of that kind happened at all. He says this lady told him she had some affection of the lungs; the doctor had told her her lungs were full of holes, but this was during the time she was under chloroform, and it is possible she may have said something of that sort, and there would be nothing in it, because people under the influence of chloroform very often say wild things, and if she had been troubled with bronchitis, and had any reason to believe that her lungs were ever so slightly affected, the effect of the chloroform on her mind might produce that mental aberration that would make her make a statement of that kind. There is the doctor's statement of what he did. He tells you the number of teeth he pulled, shows his record, and tells you how it is utterly impossible that anything of that sort could have happened. He says there was no such thing as any choking or any blackening of the face during the operation, and nothing to excite his alarm or suspicion, there was nothing to induce any extra carefulness; in point of fact, he says it was a most satisfactory operation, and he says before the lady left the establishment she expressed herself as well satisfied, although she was somewhat nervous when she began to undergo the operation, in taking the chloroform. He is confirmed in his evidence by Dr. Hart, who administered the chloroform, and who tells us there was nothing unusual. He says, "If the woman had choked, and had got this black look in the face, I would have been seriously alarmed, and I would have stopped the operation and at once commenced to administer restoratives, because I should have regarded it as a sign of impending grave danger, and I would not have permitted the operation to go on a moment longer, but would have restored her at once to consciousness." Then we have the evidence of Dr. Willmott, and he gives you testimony somewhat on the same line,—and here I may point out to you, gentlemen, what the three dentists concur in: They all say—the defendant, Dr. Willmott, and Dr. Webster, the Professor of Dental Anatomy, who has made a study of the teeth, their location in the mouth, their appearance, their general characteristics, and all that is to be known about teeth, I suppose—there was absolute positiveness that the tooth produced is the remains of a decayed wisdom tooth in the left jaw, and they described to you the characteristics of a tooth of that kind. They say wisdom teeth are very often rudimentary; they do not attain to any great size, and decay and drop out of themselves very quickly without the aid of forceps at all. The dentist says that from his examination of the mouth, he is perfectly sure there was no such tooth there at all, but there was a sort of depression in the gum, and he investigated that to see if by any chance the gum had grown over and covered up a root. He found that

was not so. Dr. Willmott and Dr. Webster tell us that operation, performed as described to them, was the proper up-to-date way of doing it; the recumbent position was the safest way, both with respect to the actual operation of pulling the teeth, and with respect to putting the patient under the anesthetic, and they all say that the natural tendency of the teeth would be to go down the gullet rather than into the larynx, although it is possible a tooth might, by a very heavy breath, be drawn into the larynx. The concensus of the evidence for the defence seems to be absolutely against the idea that it could possibly have gone down that woman's breathing organs at the time of this operation; and then the case is left, to some extent, in the region of conjecture. It is conjectured and said, if this tooth be a wisdom tooth, somewhat rudimentary in its character, decayed, nature throwing it out by natural process, the tooth was just as likely as not to be displaced by the woman's own doing, even without her knowledge, and to have gone down her throat on the street, at her meals, in bed, and might, would necessarily, have caused some distress at the time, but if she was suffering from bronchitis and this hacking cough, though the tooth might have caused that distress, she might have attributed it to the natural affection that she was then suffering from. That is the hypothesis set up by the defence to account for the presence of the tooth there. They say first it did not go down, and we know it; looking at the tooth, and looking at the thing from a scientific and expert standpoint, they say it is next to impossible for it to go down; the dentist himself says it did not go down, and he is prepared to swear to it point blank; and there is where you are. That is all the evidence, I think, which has any bearing at all upon the subject whether the tooth went down at this time or not.

Now, gentlemen, the law is quite clear that in any action for negligence before the defendant can be made liable, the plaintiff must prove the act or acts of negligence that produced the injury, or must prove that he states a fact which beyond all reasonable controversy would inevitably produce the result complained of, and those acts must be negligent acts. It is not necessary to see the actual negligent act done, but you can prove it by surrounding circumstances, and I have left this case to go to the jury, because and for this reason only, that I think there was sufficient evidence, not to find the defendant guilty of negligence, I am very far from saying that, but there was sufficient evidence to lead the jury to deliberate and see whether, in their opinion, the evidence offered is sufficient to make them satisfied that the tooth did go down at that time. If the evidence offered by the plaintiff is not strong, then the evidence of the defence ought to disclose it, because, unless the defendant is swearing to an unmitigated lie, to his knowledge, and in his desire to escape having damages inflicted on him here, he swears absolutely positively that it did not happen. You



have on the plaintiff's side that teeth were being pulled, and a tooth found a month afterwards, to support the suggestion that the tooth went down at that time, and there is the possibility urged that it might have got there at a prior time; it could not have got there subsequently, because everybody agrees that the defendant cleaned the whole mouth out. Gentlemen, I will have to leave the question to you in just that way. You must do exactly the way a grocer does when he wants to find out the weight of anything; he puts the things on one side of the scale, and the weights on the other; and here you must put the plaintiff's evidence on one scale and the defendant's evidence on the other, and you must weigh them carefully and conscientiously, giving to each line of testimony its full significance and its full weight, and if you find that under all the circumstances the defendant's testimony, its probability, its likelihood, its pointedness, outweighs the character of the evidence given by the plaintiff, then the defendant must succeed in your answer to that question. On the other hand, if you find the plaintiff's evidence has more characteristics of strength and pointedness and probability, it will outweigh the evidence of the defendant, and the plaintiff must succeed. If you are inclined to think that the plaintiff has rather the best in the way of testimony, you have to consider also this proposition: Though the plaintiff's case may look the stronger, is it fully consistent with all the evidence given that the tooth went down at some other time? Is it just as possible that the tooth may have broken loose, that nature may have thrown it out? There must be hardly one of you in the jury-box that has not had at some time a tooth so loose that you could pull it out with your finger, or shove it out with your tongue; it is quite a common thing with children. Are the facts in this case just as consistent with that theory as with the fact of the dentist, who is said to be a skilful man, letting the tooth go down there? If there is any doubt in the minds of the jury as to whether or not the plaintiff has proved her case, or whether the act she complains really is brought to the defendant's door, then the defendant is entitled to the benefit of that doubt.

Then, there is the second question: If it got in at the time when defendant was operating, did it do so in consequence of the defendant's negligence or want of skilfulness? Well, now, gentlemen, we are up against a problem. Is there any evidence whatsoever presented to you and me which shows that this man was unskilful? There is not a tittle. The evidence is all the other way. The evidence is that he is a careful and skilful man in his general way. Well, of course, that is not very strong evidence, because a man may be very good mostly all the time, and yet there may be occasions when he is a little uncertain, but still it is fairly good evidence that if a man is a good, careful, conscientious workman, whether he be a lawyer, or a doctor, or a dentist, or whatever he be, if he has been mostly always that way, it is

a very good thing to rely upon, that he will be equally careful and skilful upon the occasion complained of. It is not what you call solid testimony. But we have the evidence of the medical man who administered the chloroform, and he says that he stood over the patient while it was being done; he cannot give you the history of every tooth drawn, because I do not suppose he was concerned particularly about that, but he was watching the patient to see how she stood the chloroform, and how she stood the operation in connection with the chloroform, and he utterly denies that there was any sign of unskilfulness or want of proper care by the defendant during the whole operation, and the defendant tells you that he exercised his utmost skill and ability throughout. If the tooth got there in consequence of some acts of his, was it negligence? He might have been just as careful as he possibly could, and yet the tooth might have got away from him. We all of us know that, careful as we may be, we will sometimes make a little miss. A man might be absolutely skilful and doing his level best and using all his skill, and an accident might happen in spite of him. If that is so, then he is not liable. Now, we have no evidence that he is unskilful. What he says to you by his own lips in giving his evidence, through his counsel, is that if a tooth—I think they said turnip-shaped—if it is rounded at the crown, the forceps may get a grip sufficient to pull the tooth out, and just at the moment of the tooth's leaving the jaw the forceps may slip, and the dental gentlemen who have given expert evidence, say it is absolutely unavoidable. I suppose, too, perhaps a tooth might crack in two if it is firmly set, and that is the case, under the pressure of the jaws of the forceps might fly apart and a piece get down and do injury. Surely that would be an unavoidable accident; because damage happens afterwards, gentlemen, it does not necessarily mean that there has been negligence. The law only punishes a man in damages if the jury and the Court are satisfied that he has done something which he ought not to have done, and ought to have known better than to have done, or if he did know better that he has been careless and did not do it when he knew he ought to do it, so that a man must be guilty of sins of omission or commission, so to speak, to make him liable for negligence. He is not liable if an accident happens when he is doing his best, and is properly skilful for the job he undertakes. From that aspect of the law, and from what you have heard of the evidence, can you say that even though the tooth did get down at that time, it got there by the negligence of the defendant? Does the evidence warrant that finding? Or rather, did it, or did it not, happen by an unfortunate accident over which no human being had any control? I need not recapitulate the evidence on that point, because all the evidence I have quoted to you with respect to the first question applies with equal force to this.

Then, I have to ask you to say, if you find there was negli-



gence, to endeavor to assist me by telling me what the particular act of negligence was, whether it was a wrong instrument he used, whether he did the operation too quickly, or whether he was gazing around while drawing the tooth, or not attending to his business, or what particular act or omission does the evidence disclose that satisfies you there was negligent conduct. You have heard the evidence, and it is for you to say what answer you will make to that question.

Now, when you come down to assess the damages, you need not assess damages unless you find that the defendant was guilty of some negligence from which I will be induced in applying the law, to give a verdict against him. If your answers to the other questions are, you do not find negligent conduct, you need not bother about damages, but if you find negligent conduct, I would ask you to assess the damages. Upon what basis are the damages to be assessed? The husband tells us very frankly, and he is to be commended upon it, he says in the witness-box, "I never did want any more from this gentleman than what would pay my doctor's bill and my little extra expenses for certain things that I had to supply to a sick person. If my doctor's bill had been paid and something to compensate me for extra expense which always attends upon a sick bed, I would have been satisfied," and he says, "That was my attitude, and is still my attitude; I do not want to make money out of this gentleman." Well, the doctor's bills are \$26 and \$4, but nobody has given us any idea at all of what it has cost extra during the illness of the wife in the way of delicacies and little nourishments which the woman would not have required if she had been in her ordinary state of health, and you may put what you think reasonable and proper for that. I do not think you would be very far astray if you took Mr. Hendren at his word and did not give him any more than he himself wants, namely, to be paid for what he has paid out for the doctor's bills and what you consider reasonable and fair as an allowance for such extras in the way of necessities and medicine he would have to pay out for his wife's illness, and then you can give him what you think is reasonable for the loss he would sustain in the loss of domestic comfort that a man naturally looks for. A sick wife is very different from a well wife. When a man has his wife around the house looking after his comfort, his meals are got ready, and the house kept in good shape; he is more comfortable and better fixed, and happier, and the law very properly says if an injury is caused to the wife through which she is prevented from performing her domestic duties, the jury may allow a reasonable sum for that. Then you may allow the wife what you think will compensate her for any suffering she may have had, because that is all she is entitled to.

So, Gentlemen of the Jury, I think I can dismiss you, and ask you to answer the questions I have drawn up. I do not think

I need point out anything further to you in the way of evidence, because you have heard it all.

[On question one submitted to the jury, they could not agree; on question number two, they agreed that there was no carelessness nor want of skill. As there was neither carelessness nor want of skill, question number three did not apply, nor could any damages be assessed.—ED.]

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## DON'TS IN ORTHODONTIA.

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BY A. E. WEBSTER, D.D.S., TORONTO.

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Read before the Toronto Dental Society.

Do not begin the correction of an irregularity until a diagnosis is made.

Do not wait until all the teeth are erupted to begin the correction of an irregularity. Anticipate the deformity and guide the teeth into position.

Do not forget that upon the proper occlusion of the teeth depends the success of every operation of facial orthopedia. The lower teeth are the guides to the upper.

In arriving at a diagnosis do not look at the irregular tooth alone. Examine all the teeth. Note the occlusion and the profile and facial expression.

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## DON'TS IN ORTHODONTIA.

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BY CHARLES E. PEARSON, D.D.S., TORONTO.

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Don't correct irregularities for fun—unless you are a professional comedian.

Don't expand the arch if you can extract anything—even the centrals will do.

Don't leave a retainer on too long—till death is long enough.

Don't excite your patients over possible difficulties—they are apt to go to the other dentist.

Don't take the spring out of an alignment wire—it's a good way to extract molars.

Don't use a simple appliance if you can make a complicated one—few men can.



**Clinics at the Canadian Dental Association,  
Montreal, Sept. 15, 16, 17, 1902.**

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**REPORT OF CATAPHORIC CLINIC**

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BY WESTON A. PRICE, D.D.S., CLEVELAND, OHIO.

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The purpose of the clinic was to demonstrate by a practical application on a patient the following points: (1) That the sensitiveness of a tooth could be entirely relieved by a proper application of cataphoresis; (2) that the application itself could be made without producing a particle of pain or discomfort to the patient; (3) the technique of making an application properly; (4) a demonstration of the defective features of the heretofore available apparatus; (5) the method of application to specially difficult cases; (6) the absolutely essential features for a successful application.

For a patient a dentist with especially sensitive teeth was desired, and several were rejected before a sufficiently sensitive case was found. The rubber was adjusted and the application made in the mesial cavity of a second bicuspid, which had also a large distal cavity, both filled with cement. There were large metal fillings in the adjoining surfaces of the first bicuspid and first molar, which made insulation difficult. To make the test more exacting and difficult, the tooth was to be so thoroughly anesthetized that the distal cavity under its cement filling should not be the least sensitive, though anesthetized through the mesial cavity.

The method of procedure in this case was as follows: A wall of warmed gutta-percha was made against each of the adjoining metal fillings, and a hole drilled through the cement filling in the mesial cavity. This hole was made by an onlooker by request of the operator, and the tooth was extremely sensitive underneath the cement, to the satisfaction of the patient and onlookers. A pledget of cotton was wrapped with the fine platinum wire in the end of the flexible electrode, and this cotton dipped into distilled water, and the excess was squeezed out and hydrochlorate of cocaine crystals picked up with the balance. This was placed in the cavity, and the other electrode placed over the temples for convenience.

The application of the current was perfectly painless, except when conditions were purposely produced like those in instruments heretofore in general use, and the patient could readily feel the difference. The controller of this outfit will turn on as small an amount as a ten-millionth of an ampere, as the

maximum steps and the millimeter reads so much more distinctly than those heretofore available, that, for example, when the needle of the instrument most used heretofore would move one inch, the needle of this would have to move one hundred and twenty-eight inches to measure the same current. The dial is so plain that it can be read in hundredths of thousandths of amperes, and at a distance of thirty or forty feet.

The application was made for twenty minutes, and the tooth was so perfectly desensitized that both the mesial and distal cavities were prepared without a particle of sensitiveness being felt by the patient. Several took the handpiece and tested the cavity.

The apparatus used was developed and designed by the clinician, Weston A. Price, after several years of investigation and continuous successful use. It is manufactured by the Electric and Specialty Dental Manufacturing Company, of Cleveland, Ohio.

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## THE STAPLE CROWN.

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BY H. E. EATON, D.D.S., TORONTO.

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This crown is intended to take the place of the open-face crown, and is indicated in the following cases:

1. A bicuspid with large mesial and distal cavities, lingual wall very frail, buccal wall comparatively strong. (See Fig. A.)
2. Where it is desirable to replace a first or second bicuspid by attaching a dummy to the remaining bicuspid, which may be perfect, or affected, as in case No. 1.
3. Where it is desirable to attach a dummy to replace any one of the six anterior teeth.
4. To serve as an attachment especially for the anterior end of a bridge.

The preparation of the tooth for this crown is as follows—taking first case No. 1 (Fig. A.):

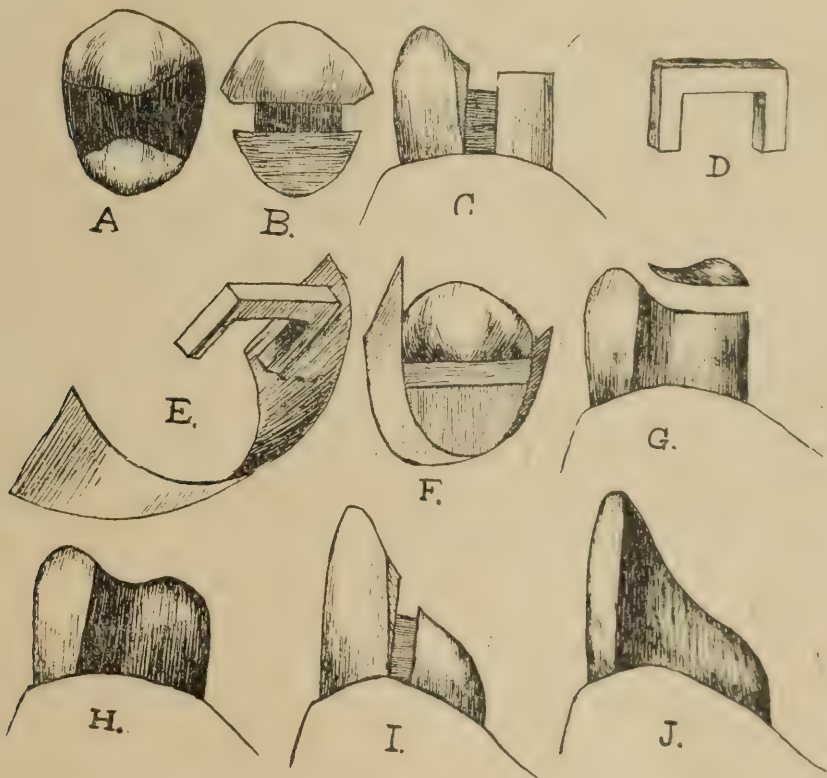
Excavate the cavities and fill with cement. Trim down lingual cusp as in Fig. C. With a fissure bur or inverted cone form a groove extending from the gum line on the mesial surface to the morsal surface, across the morsal surface mesio-distally and down to the gum line on the distal surface. (See Figs. B and C.)

With a piece of square iridio-platinum posting, gauge 16, form a staple (Fig. D) to perfectly fit the groove. When placed in position it should exactly fill it. Cut a band of pure gold, or



green gold, which works as softly as the pure gold, and attach to the distal leg of the staple 1-16 in. from the end of the band, as in Fig. E. Place the staple in the groove and wrap the band around the lingual surface of the tooth—trimming to fit the gum-line—bring the end in contact with the mesial leg of the staple (Fig. F). Mark the contact point, remove solder, and trim. Place again on the tooth, trim the band even with the ground morsal surface. Swage cusp to fit approximately (Fig. G), attach to band at one point, place in position on the tooth, burnish to fit, seeing that the occlusion is correct. Remove, solder, trim and polish. The crown is now ready to be set. Fig. H shows the crown in position.

In case No. 2, if the tooth upon which the crown is to be



placed for the attachment is a perfect tooth, the lingual cusp may be ground down, and the groove made without any interference with the pulp, and likewise with cases 3 and 4.

When the staple crown is completed as described above, the attachment of the dummy is made as in case of any shell crown, flowing the solder well over the lingual surface for strength. Fig. I. shows an incisor prepared for the crown, and Fig. J the crown in place.

The advantages of the staple crown are: (1) Its very secure anchorage in the tooth by a well-fitted staple. (2) The absence of a show of gold. (3) The contour of the tooth is not destroyed, as in the case of an open-face crown.

## ADAPTATION OF ARTIFICIAL DENTURES.

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BY W. V. B. AMES, D.D.S., CHICAGO.

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A method of accomplishing atmospheric retention of entire upper dentures was illustrated by means of models and dentures. The system called for so extending the denture beneath the lip and cheeks, around the tuberosity and across the palate that the entire periphery will be in contact with lax, soft tissues. These tissues, being either slightly displaced or in such relation to the edge of the plate that they tend to follow the edge and prevent the passage of air beneath when the plate tends to leave the surface with which it is in contact, there is a tendency to the creation of a vacuum; but since the displacing force is not sufficient to overcome the atmospheric pressure manifested, the denture is not disturbed in mastication. The system simply consists of carrying the denture far enough in all directions to get a valve-like action in connection with lax tissues capable of contributing to such valve-like action.

The use of new process oxyphosphate of copper in the re-fitting of dentures was also demonstrated by simply placing some of the plastic cement upon the faulty surface and placing accurately in position, as in taking a plaster impression, the cement when hardened correcting the defects.

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## MAKING OF DENTAL ALLOY.

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BY J. FRANK ADAMS, D.D.S., TORONTO, ONT.

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*Materials.*—(1) Chemically pure metals: silver, in granular form, 67.73; tin, in prismatic form, 26.33; copper, in granular form, 4.71; zinc, in granular form, 1.23; (2) Dr. Shaw's apparatus for manufacturing dental alloy.

*Method.*—Melts of the metals were made by mixing them together and placing them in a long scoop, from which they were poured into a red-hot crucible, well lined with borax and imbedded in coals in a furnace or stove, the mixture being well covered with borax and the crucible covered by an asbestos mat. After about twenty minutes the crucible was removed from the furnace, the melt well stirred with an iron rod, poured into a mould of cylindrical shape, and upon a spindle capable of being mounted in bearing, and rotated against a tool which will turn off the alloy in easily pulverized shavings or grains.

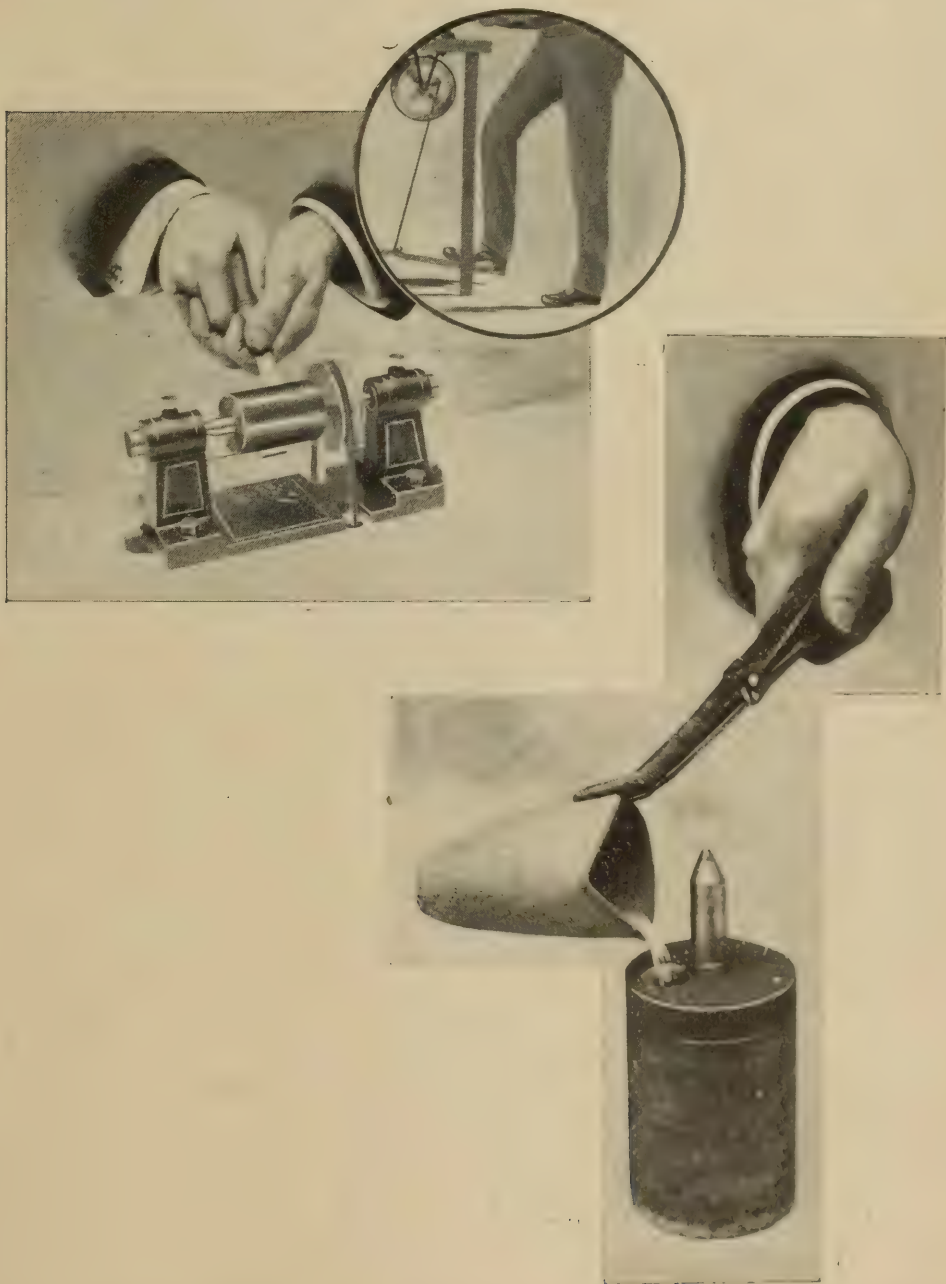
The apparatus comprises, for this purpose, an easily operated and convenient lathe, designed to be secured upon a bench or



similar support having a suitable driving pulley properly located in relation thereto, and can be operated by attachment to ordinary dental foot lathe or motor power.

The turnings were put through a No. 80 sieve, and a magnet passed through. Finally, they were bottled and annealed by heating over boiling water for twenty minutes.

As it is difficult to combine perfectly the copper with the other metals, I have used with the same formula the precipitates



of copper and silver, fine granules of zinc and fine turnings of tin. A mixture of these finely divided particles would seem to give when melted a more thoroughly incorporated mass.

Melts made after different formulæ all ready moulded on the spindles were shown—also those cast in ingots ready to be filled.

The method of making turnings from the former were compared with that of making filings from the latter. Comparisons were made between the results of the various turnings and filings, also between the turnings and some of the standard dental alloys. Tests were made in glass tubes with colored fluid, and in the results alloys made from above formula stood the test as well as Fellowship, Twentieth Century, True Dentalloy, etc.

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## REPLACING FACING—QUICK METHOD.

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BY H. E. EATON, D.D.S., TORONTO.

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In the backing from which the facing has been broken, drill pin-holes to correspond with pins in facing to be put on. Grind facing to fit. Carbon paper may be used to mark points of contact that need grinding down. With Dr. E. A. Bryant's bridge-repair outfit, which is composed of a countersink, dies for threading pins, and a combined carrier and driver, used to adjust the nuts, gold nuts are supplied to exactly fit the enlargement made by the countersink. These instruments are made for the right-angle, in order that any part of the mouth may be reached. Having fitted the facing, countersink the pin-holes on the palatine or lingual surface with the instrument made for that purpose. Turn a thread on the pins in the facing, dry off the backing, and mix a little cement, as for setting a crown; apply it to the backing; place the facing in position, and with the carrier adjust the nuts to the protruding ends of the threaded pins. Screw up as tightly as they will bear, grind off and polish the ends of the nuts, remove the surplus cement, and the work is completed.

Two further suggestions might be offered in connection with the operation. (1) In place of the combined carrier and driver, which comes with the outfit, a worn-out right-angle may be used, and will be found more convenient in certain cases. A bur with a screw-driver formed on the point to fit the nut, is securely fastened into the right-angle. Make a German-silver sleeve or ferrule to slip loosely over the bur for the purpose of receiving and holding the nut. Split one end, making four fingers, which will have spring enough to hold the nut securely, while placing it, but which will easily withdraw from it when well started on the facing-pin. With a tube made of German-silver extend the mandrel to half an inch beyond the right-angle sleeve. On the end of this place a ball or button for the convenience of turning it with the fingers.

It will now be readily seen that with the nut placed within the ferrule, which in turn is adjusted on the driver, and carried



to the threaded facing-pin, that it is a very simple operation, with a few turns of the button to send the nut into place.

(2) Occasionally a case presents where the pins are so close together that there is not room for the two nuts side by side. In such a case put one nut on and grind it down even with the backing before placing the second one.

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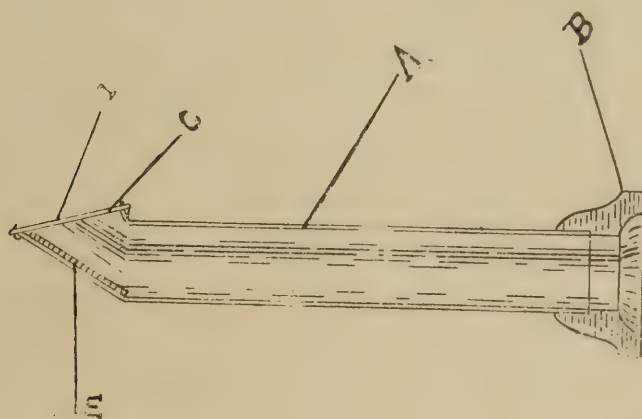
## ORAL FLUOROSCOPE.

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By W. E. WILLMOTT, D.D.S., TORONTO.

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Consists of a brass tube (A) plated; eye-piece (B); fluoroscope (C), covered with vulcanite (D); mirror (E) in angle. The fluoroscope is inserted into patient's mouth, and the operator can see the reflection from the X-ray, through the eye-piece, on



the mirror. He can see at once an unerupted tooth, or the direction of the root of a malposed tooth or any foreign substance in the antrum, without waiting to expose and develop a film. The room does not need to be darkened.

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## ROOT FILLING.

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By M. F. CROSS, D.D.S., OSHAWA, ONT.

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The essential characteristics of an ideal material for root filling should be: (1) the perfect closure of the apex of canal; (2) it must be insoluble; (3) it must not absorb the fluids of surrounding tissues; (4) it must be non-irritant, should it be forced through the apex of root. In my earlier practice I used oxy-phosphate of zinc, then got to using pheno-banum (quick cure) with most encouraging results, and had thought I had discov-

ered a material that filled all the above requirements. After employing it in a most careful manner in the filling of the roots of a lower molar of a prominent physician of the town, both patient and I were much elated, for a few days, over the result of the operation, when, much to my chagrin and patient's disgust pericemental trouble occurred, resulting in the removal of the tooth as a "quick cure." Paraffin I also used as in the same manner as quick cure, working it up the root with a warm wire or forcing up with pressure of soft vulcanite or syringe. I always disinfect roots by using a hot wire to steam or volatilize the medicinal agent placed in the root for that purpose. It matters little with what material the root is filled so long as the apical foramen is thoroughly and comfortably sealed, and gutta-percha points, as I am using them now, do that as effectively as any other material at our command. After thoroughly removing the pulp by means of the pulp extractor, I clean out and enlarge all roots with root canal broaches of different sizes, for no matter how pliable any root drill, there are very many cases where we cannot drill to the apex, viz., in distal canals of upper molars and mesial canals of lower molars, to say nothing of the tortuous canals found in third molars. By first using a fine broach as a draw file and then a larger one, any canal can be enlarged to the size required. I have here to show you many cases of perforation of the root caused by using a drill in a crooked canal. Such teeth could not possibly be opened up to the apex by means of a drill, however flexible. I first take a gutta-percha point as small as the particular case requires—if I have none fine enough I warm and draw one fine, cut it very short with a suitable fine root plugger carry the point and force it into place at end of canal after such end of canal has been slightly moistened with eucalyptol, which is a solvent of gutta-percha. Piece by piece is used, until the smaller part of the root is filled, when larger pieces may be used to finish the canal filling. Never use one long point, as we buy them, in starting, as by such means you are unlikely to get canal thoroughly filled.

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### METHOD OF CURE OF ALVEOLAR ABSCESS THAT WILL NOT YIELD TO TREATMENT THROUGH THE ROOT CANALS.

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BY G. M. HERMESTON, B.A., D.D.S., PICTON, ONT.

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Many roots of teeth, or the teeth themselves, are sacrificed because after continued treatment the alveolar abscess situated beyond the apex of the root seems too obstinate to heal. In such



cases the root canal being thoroughly sterilized, fill to the apex with a permanent root canal filling. Make an incision in the gum tissue over the root, and far enough apex-ward so as not to destroy the alveolar process of the gingival line and thus avoid recession of the gum. With an Allport bur in the dental engine make a tract extending to or a little beyond the apex of the root; this should be large enough to admit of easy access for cleansing. Should the apical end of the root be necrosed and roughened, smooth with a fine cross-cut bur or a small curette. Cleanse the tract thoroughly with dioxogen, then with distilled water, and pack with medicated gauze, dipped in oil of cloves or in a saturated solution of boracic acid. Repeat the cleansing and dressing daily for five or six days, when no further dressing should be necessary.

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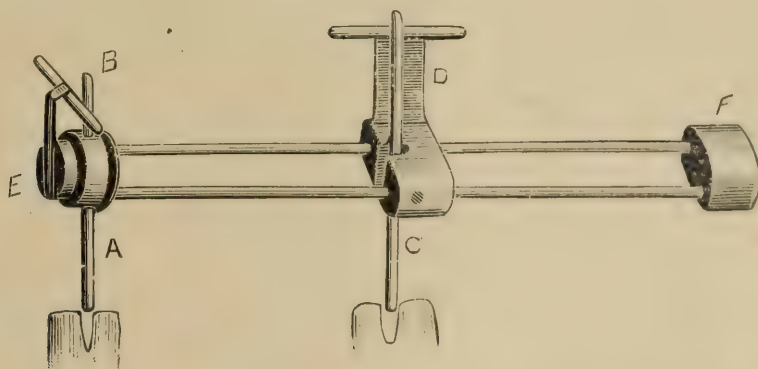
## ACCURACY IN BRIDGE-WORK.

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BY A. J. McDONAGH, TORONTO.

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One of the difficulties we have with bridges is that when they are finished we cannot get them to go into place, and we cannot see where the trouble is located, particularly is this true if the bridge has been made by a mechanical man from an impression.



Usually the fault is that two post-holes are not parallel; or a post-hole and surface of a trimmed tooth are not parallel.

We can rectify this difficulty if we have a proper instrument to guide us. With little trouble, and in this instrument, which I am showing, I believe we have the means at hand. It consists, as you see, of two posts, AB and CD, which, when in proper position, are parallel, attached to a frame which holds two indicators to tell you when the posts are parallel, and if not, to tell you how much they are out, and in which way, and exactly where.

To make the instrument more useful, the post CD is movable the entire length of the instrument from E to F. Of course, if you use this instrument in preparing the abutments for the bridge, you will never have any difficulty in putting the piece in place when finished, provided you make your bands to fit and take a proper impression.

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### • DENTAL APPLIANCES.

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BY F. D. PRICE, D.D.S., TORONTO, ONT.

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An electric cabinet was presented, containing instruments connected as for use, viz.: (1) Mouth-lamp, with adjustable hood; (2) sixteen candle antrum illuminator; (3) cautery blade for removing tumorous gum tissue; (4) indicator to determine if a tooth is alive; (5) air heater for compressed air outfit; (6) air heater, two forms with bulbs; (7) spatula for warming gutta-percha; (8) slab for warming gutta-percha; (9) wax spatula for laboratory; (10) a new device for warming medicine in a cavity, to give greater therapeutic effect; (11) water warmer with attachment to hold water at temperature of about 100 degrees; (12) an operating lamp for the forehead; (13) a porcelain oven; (14) gold annealer; (15) gas igniter; (16) a canal dryer; (17) an attachment for hand-piece on engine to throw stream of warm air and light in cavity.

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### BONWELL'S METHOD OF ARTICULATION.

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BY K. C. CAMPBELL, D.D.S., CARLETON PLACE.

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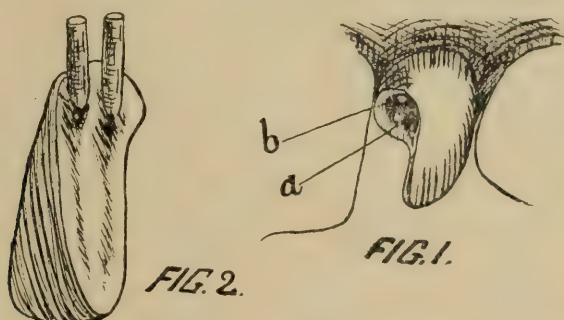
The system, briefly, is this: that the length of the over-line, the length of the cusps of bicuspid and molars, the position of the teeth in the arch, and the vertical curvatures, all bear a definite relation to each other, and cannot be considered separately. With this end in view, an anatomical articulator is used. Each tooth is ground before assembling, for two reasons: First, to lengthen the cusps of bicuspid and molars; secondly, to sharpen the teeth. The anterior teeth are ground, the superior on the lingual surface, and the inferior on the labial surface. All grinding is done with a small lathe stone, one inch or less in diameter. By this means, when the act of incising and of masticating is performed, the greatest utility of denture is procured.



## PORCELAIN FILLING IN THE MESIAL ANGLE OF A SUPERIOR LATERAL INCISOR.

BY CHAS. E. PEARSON, D.D.S., TORONTO, ONT.

The cavity is prepared with sharp, well-defined enamel margin. I may say the sketch represents the tooth with the cutting edge tilted slightly toward the spectator. Two pits are drilled in the dentine—A and B—to receive two pins of iridio-platinum wire. Platinum foil No. 60 is then burnished over the surface and punctured into the pits, and the wire inserted. A



little body is added to hold them in place, and the whole gently teased out and baked. Just sufficient body is used in this first baking to fasten the pins to the matrix. It is then replaced in the cavity and reburnished. Gradually add porcelain from the centre toward the enamel margins until the contour is restored. A wire in the form of the letter "U" may be used instead of two pins, and greatly facilitates the work. The pins and cement are all the retention the filling has, but I have not had any give away in my short experience.

## COMBINATION FILLINGS (TIN AND GOLD).

BY FRANK WOODBURY, D.D.S., HALIFAX, N.S.

The principles upon which the demonstration was based are: (1) The kindly way in which tin is received by the tooth structure, and the hardening effect upon the dentine. This is illustrated in cavities that have been filled for some time with it; (2) the affinity of gold and tin in a cavity—in a few months the tin will have become as hard as amalgam, and inseparably united with the gold; (3) the evident therapeutic effect of this combination

in the tooth, especially at the cervical walls and at the cervico-lingual angle of cavities in the anterior teeth, the point which is most likely to fail; (4) it is not necessary to use a great quantity of tin. The tin used is No. 4 foil, folded to No. 16 or 32. It is cut in strips from one to two lines in width. The cavity is prepared as usual for gold filling. Suppose the tooth to be filled is an upper right central. It is prepared as usual. It is desired to line the cervical wall with tin. Anchor the gold in the retaining points or grooves, and build across the cervical wall, being careful not to cover the enamel. Then take a strip of the prepared tin in the pliers, and, from the lingual side, slip it between the teeth and press the free end against the rubber dam, with the index finger of the left hand; then with a finely serrated plugger adjust the tin over the enamel margin, and let it lap half way over the gold already in the cavity; press it firmly at one point with the plugger into the gold, and it will stay there; then put on a gold pellet and condense it on the gold, letting it lap over the tin. If this is all the tin that is wanted, proceed as usual with the gold filling. If more is needed or desired, lap the tin strip back and forth, or use new strips, till it is thick enough. In this way the filling is not weakened in any way. In the anterior teeth the tin should not lap out to the labial wall, as it becomes black and would show badly. Do not use anything but hand-pressure directly on the tin.

*Where Used.*—(a) In mouths where "all gold" fillings fail; (b) at cervical walls of all-gold fillings; (c) where "all-gold" fillings discolor—tin and gold, the gold will remain bright; (d) in cases of chemical erosion of anterior teeth, one thickness of No. 16 strip, at cervical margin has successfully prevented further progress of the disease where "all-gold" has failed.

Teeth were displayed showing the fillings of tin and gold in various stages of completion.

The clinician did not claim this method of filling to be a cure-all, and succeed every time, but as one means by which some of the many difficulties lying in the way may be overcome.

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## GOLD FILLING.

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BY J. A. MARSHALL, BELLEVILLE.

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Inserted a large filling by hand-pressure, which was pronounced both rapid and thorough. The patient was in the chair about 40 minutes. Gold used, about 20 grains.



## CONTOUR AMALGAM FILLINGS.

BY J. M. MAGEE, D.D.S., ST. JOHN, N.B.

Natural teeth were set in a plaster cast, with pieces of rubber tubing slipped over the roots (before running the plaster), to admit of their moving slightly, so that when the fillings were inserted the contact and correct contours would be as readily illustrated as in the mouth. Three cavities were filled, one being contoured to meet a sound proximating surface of the contiguous molar, the other two being proximo-occlusal cavities in a lower bicuspid and the adjacent molar. The cavities having been prepared, a matrix cut from very thin sheet steel was fitted to each tooth, especial care being given to that part which embraced the cervical portion. Filling the bicuspid cavity first, the matrix was slipped down between the rubber tubing, which represented gum tissue, and the tooth, and a small piece of softened base-plate gutta-percha was tucked into the interproximal space holding the matrix snugly against the neck of the tooth. Its upper side was held off distally far enough to ensure a generous fulness. To support it in place, gutta-percha was softened and pressed into the cavity in the molar, and other pieces laid against the sides of the matrix and pressed gently, while soft, with the thumb and finger, causing it to spread not only over the matrix, but into the triangles and against the adjoining tooth. When cold, and given additional support by the thumb and finger, as much pressure as was necessary for perfect consolidation of the amalgam, which was then inserted was made without displacing the matrix. The gutta-percha was then removed, and the now loose matrix taken away, and the amalgam was carved to the shape of a correct restoration.

The other matrices were supported in the same way—a small piece tucked into the interproximal space to hold the matrix against the neck of the tooth, while the upper side was held in contact with the adjacent tooth—then larger pieces placed at the sides and gently pressed with thumb and finger. The bicuspid being now contoured, a matrix was next stayed round the molar, and amalgam packed into it in turn. When full, the ends of the matrix were straightened out, one end grasped with pliers, and it was pulled out sideways, leaving a nice V-shaped space and good contact. This filling was then carved for contour and occlusion. The remaining cavity was then filled, following the same procedure. The matrices were all made to extend a little higher than the filling would be when finished, to allow for carving, and to ensure a perfect occlusion.

## Proceedings of Dental Societies

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### MINUTES OF PROCEEDINGS OF BIENNIAL CONVENTION OF THE CANADIAN DENTAL ASSOCIATION, HELD AT MONTREAL.—SECOND SESSION.

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MONTREAL, Wednesday, Sept. 17th, 1902.

The meeting was called to order at 3.15 by the President, Dr. Stevenson, who said:

Gentlemen, the committee in charge of the programme, in order to facilitate the reading of the papers, have decided, this afternoon, to have the papers which were put down for this morning. I have great pleasure in introducing to you a gentleman who is well known to us all, and who has taken an active part in the attendance of this Convention. I have great pleasure in calling upon Dr. Ottolengui, of New York, to read his paper on, "Should Children's Permanent Teeth be Filled with Gold?" (See page 67.)

DR. OTTOLENGUI.—Mr. Chairman and gentlemen, I would like to say that it is a very pleasant thing indeed for me to read a paper before the gentlemen here. I feel I owe a debt of gratitude to Dr. Webster for insisting on my coming, because I do not think that I have ever been introduced to a body of men, the majority of whom were unknown to me before, where I felt so much at home as I do amongst the members of this Association. (Applause.) My paper is entitled "Should Children's Permanent Teeth be Filled with Gold?" I have been asked what I mean by children. In reply to that I would say that I mean by children boys and girls who are not old enough to be married.

THE PRESIDENT.—I will call upon Dr. Sparks, of Kingston, to open the discussion.

DR. R. E. SPARKS, Kingston, Ont.

*Mr. President*,—The subject of the paper we are about to discuss has been ably handled by the writer. It is to be hoped it may receive the consideration its importance deserves. The doctor's distinction of a child is rather indefinite. I have taken for granted that by "child" he means one between the ages at which the first permanent teeth erupt and when the twelfth-year molars erupt—say twelve, or perhaps fourteen years.

I will draw attention to a few points in the essay which are contrary to my observation, and which do not seem to be borne out by the arguments of the essayist. He starts out with the proposition that children's teeth should be filled with gold "wher-



ever possible," and then names as contraindications for the use of the material, conditions which exist in probably ninety per cent. of the cases we have to treat, so that his rule becomes the exception. Had he said "whenever feasible," and then added one more contraindication, namely, inability or unwillingness of the parents or guardian to pay the difference of fees which most operators consider should be made between gold fillings and plastic, I would not feel much inclined to take issue with him. I seldom find conditions in which I consider it feasible to use gold in children's teeth. My reasons will appear as we consider the arguments advanced in its favor by the writer of the paper.

He lays down two propositions: (1) That "the demand for gold is imperative in initial cavities, the pulps being alive and in a state of unimpaired health;" (2) that "the demand for gold is lessened in proportion as the encroachment reaches or destroys the pulp." In support of the first the essayist considers that an amalgam filling inserted in such a cavity is "little less than malpractice;" that "such fillings have never proven permanent," that such cavities "must never be filled with amalgam;" that "only gold will preserve frail walls."

In support of his second proposition he admits "the large size of a cavity may render it advisable to use amalgam," and, "in such cases amalgam is as good as gold." These arguments seem somewhat contradictory. If only gold will preserve frail walls, then the larger the cavity, and, consequently, frailer the walls, the more imperative should be the demand for gold. On the other hand, if amalgam will preserve teeth having large cavities, and experience proves that it will, why should it not preserve teeth having small cavities?

I thoroughly believe in gold as a preserver of teeth when perfect fillings are made of it; but consider it the poorest material we have for the purpose if not perfectly adapted to the walls of the cavity.

The writer is timely in his remark when he incidentally states that "young men must learn to fill soft teeth perfectly with gold." I would also add hard teeth as well, if they desire success. I delight in the operation of filling teeth with gold, and admire perfect gold fillings more than any other work I find in patients' mouths. It is not to gold as a material, but to gold filling as an operation, as it applies to children's teeth, that I take exception to the views expressed in the paper. We will first compare it with amalgam for children's teeth.

The writer admits that "a good amalgam filling is better than a poor gold filling." I would go one better and say, "a poor amalgam filling is better than a poor gold filling." But there is little excuse for making poor amalgam fillings. The good alloys obtainable, the slight retention grooves necessary for retaining, the ease of adaptation, the ease with which it may be

patched in case of recurrence of decay beside it, and its comparative inexpensiveness make it, in my opinion, a much more practicable filling for children's teeth than gold.

Especially does this apply to proximal surface cavities in molars and bicuspsids where it is so difficult and tedious to perfectly finish a gold filling at the cervical wall. It is in connection with such cavities the essayist makes the surprising statement that it requires as much time to prepare a cavity, fill it with amalgam, and, at a subsequent sitting, finish the filling, as to fill with gold and finish at the same sitting. He says that in preparing cavities for amalgam in ninety-nine cases out of a one hundred "simply the actual caries is removed." In a large percentage of cases that is all that is necessary. After the frail walls have been broken down and made smooth and the carious matter removed, if the cavity be of a shape to retain the filling, what more is required? The filling being inserted in a plastic condition accommodates itself under pressure to the shape of the cavity. Gold, on the contrary, having to be inserted piece by piece, retention must be secured at the point of commencement of the filling and continued throughout the cavity to the finishing-point, in order that the first part of the filling may not be dislodged by the pressure necessary to condense the latter part of the filling.

If an amalgam filling be carefully inserted and trimmed to the margin of the cavity while soft it will require very little finishing at a subsequent sitting. A little heavy burnishing will carry away any feather-edge of metal which may have been drawn over the margin of the cavity when the filling was inserted, and will make a smooth and close contact of filling to the edge of the cavity wall. Owing to its liability to tarnish and become unsightly, it is not desirable to use amalgam in front teeth. Here, if the case be favorable, gold may be more strongly urged. But for various reasons, in a large percentage of these cases, it is impracticable to use gold. For instance, the cavities may be extremely sensitive; the patient young, nervous and unappreciative. Decay may, as the essayist terms it, "be rampant," and we may be convinced that, under present conditions, no filling will be permanent; or the case may be favorable as far as the condition of teeth and surroundings are concerned, but when gold is suggested the mother (it is generally the mother who accompanies the child) will, in nine cases out of ten, ask what the cost will be. It is very unsafe to give an estimate of the cost of gold filling; but in these cases she must have an idea of the probable cost. The best one can do is to give a minimum and maximum estimate. Having learned this she may decide that she cannot possibly afford it; or we may have all these conditions combined in one case.

What now must be done? The essayist says he considers the



filling of front teeth with oxyphosphate or gutta percha "an abominable practice." I consider these materials, especially the former, a perfect God-send to dentistry for the cases under consideration. At slight outlay of time and trouble on the part of the dentist, and at comparatively little expense on the part of the parent or guardian of the child, these teeth may be preserved for some years, or until the cavities have lost much of their sensitiveness; or until the child has become older and more appreciative; or until he or she may be able to pay for the permanent fillings out of his or her own earnings. Care should be taken to advise the parent or guardian of the temporary nature of the fillings and insist upon a regular return for subsequent examinations and replenishing where fillings may be dissolved, or worn away.

I am well aware that the class of practice will vary with the class of patients we chance to have, but I have viewed the subject from the standpoint of a practice drawn from the mediocrity of society, which largely furnishes the clientele of the ordinary dental practitioner.

THE PRESIDENT.—Perhaps Dr. Johnson would like to say something in connection with this. It is a very important matter, and one in which we all take a great interest.

DR. JOHNSON.—Mr. Chairman and gentlemen, I had not intended to speak upon this subject at all, but it is one which appeals very strongly to every practitioner. As I understand the paper, Dr. Ottolengui proceeds in a certain definite way with certain classes of cavities, and he presents to us the most simple class that we come in contact with in the care of children's teeth, the small occlusal cavities of molars and bicuspid. I was struck forcibly by the remark of Dr. Sparks, when he made the contention that most cases that come to us are entirely outside of the class mentioned by Dr. Ottolengui. I would like to know from Dr. Ottolengui how he would deal with proximo-occlusal cavities in molars and bicuspid, involving the interproximal space, and also with extensive proximal cavities in incisors and cuspids, if he does not use gutta percha or oxyphosphate of zinc, which he so heartily condemns. I gather, as nearly as I am able, that the positions of these gentlemen, while they seem to be apart, are after all very similar. (Laughter.) I believe we all agree upon these questions nearer than we think we do. I think the thing most of us do when we meet a condition, is to do the best we can for that particular case, with the light we have on the subject to date. (Hear, hear.) Looking at it from that point of view, I do not consider it good judgment, nor do I believe Dr. Ottolengui would, to take a tender, delicate child of nine or ten years of age, whose mouth was filled with large cavities—in the molars particularly—and subject that child to operations so exacting as the insertion of perfect gold fillings

would be; nor do I believe, gentlemen, on the other hand, that it is good practice, nor for the best interests of dentistry, nor for the best interests of our patients, that amalgam should be plastered indiscriminately into every case that comes to us, whether a molar or bicuspid. I think we ought to endeavor to have our fingers so skilled that we can insert good gold fillings into many of our little patients, who are not especially nervous, without taxing them too much, and the sooner we are able to do this, and the sooner we demonstrate sufficient love for children in our hearts to give us control over them, the better we will be serving those children. There is a large element of habit in this thing. We get into the habit of using amalgam here, there and almost everywhere, and the amalgam habit is the most abominable habit that ever took hold of the profession. I will almost say that the perfect insertion of amalgam requires the same skill as for a gold filling. Of course, the operation is more exacting on the patient for gold. But the crucial point is here. When I say a perfect amalgam filling, I want to say in the same breath that there are very few, if any, perfect amalgam fillings. In the constant use of amalgam there seems to be some tendency which encourages us to "sloppiness," if I may use the word. You start two young men from college—you know this question always appeals to me, the influence that it has upon young men. I am very much interested in the young men, much more so than in what the older men do. You cannot divert an old man; he knows what he wants to do, and he knows the way he is going to do it. I would not try to divert an old man, but these young men who are just starting out; you take two of these young men—say they have just graduated from college. Start one out in practice, and let him have as his ideal the insertion of perfect gold fillings, let him practise up to that ideal as constantly and faithfully as he can. Take another young man who is satisfied to yield continually to the temptation of inserting amalgam fillings. At the end of five years these young men, starting out with the same education and the same prospects, the young man constantly using gold, and aiming at perfect gold fillings, will be so superior as an operator, and will be doing his patients so much better service in every way in all kinds of operations than the other man who used amalgam, that they are not in the same class at all. There is no more dangerous taskmaster in the profession to-day than that of amalgam. It appeals to men as an easy way of doing things, but if there is any abomination in our profession it is the easy way and the short cut. There is this other feature of it: if we develop, as I said before, the skill in our fingers to do perfect gold work, perfect gold work will become the routine work of the office, not the exception. Gold is one of the best servants that we have to-day. It is the king-pin of all filling materials, and it has this wonderful characteristic, that no



other material that I know is possessed of, that it is uniform in its behavior at all times, if you manipulate it in the same way. You cannot say this of amalgam. Sometimes you get from a manufacturer a batch of amalgam, and you take from the same manufacturer another batch, use them both in the same way and with exactly the same care, and you will get entirely different results. You cannot form any idea of what the result will be from any ordinary examination that you can make of these different batches of amalgam. I hope the profession will study that point carefully, and I hope in the future that the character of dental work in this country, in the United States—yes, all over the world—will advance. And remember this, if it does advance, it will not advance on the basis of doing a large percentage of amalgam work. (Applause.)

THE PRESIDENT (Dr. Nolin).—Are there any other gentlemen who wish to discuss the matter? It is a very important one, as we all know, and there ought to be several members who would have something to say on this very interesting subject. Perhaps Dr. Martin, of Toronto, might wish to say something on this subject. I am sure we would be all very glad to hear him.

DR. MARTIN.—Mr. Chairman and gentlemen, I do not feel myself at all fitted to discuss this subject, but I would take issue with one phrase that Dr. Johnson used in his remarks, when he spoke of “plastering amalgam.” Perhaps I misunderstood him, but I think there is a great deal of careful work done with amalgam, and there is a great deal of “sloppy” work done with gold. (Hear, hear.) I agree with the essayist in his contention and in the whole trend of his paper, that too much amalgam and other plastics have been used, and that we should have a higher ideal. We educate our patients to the ideal that we start out with, and I agree with Dr. Johnson that in five years’ time two young men who start out together, but pursue different ideals will have a very different class of patients, according as they start out. I did not expect to make any remarks on this subject, which is of great interest to everyone present. (There are older men and men longer in practice than I have been here present now, and men who are more fluent in expressing their ideas, and I would much prefer to hear them than to take up your time any further.)

THE PRESIDENT.—I understand that we have an Australian dentist in the room with us, and I would call upon Dr. Wood and extend to him the courtesies of the floor, if he wishes to make a few remarks. I am sure we would be very pleased to hear him.

DR. WOOD.—I thank you, gentlemen, for the compliment you have passed me in asking me to speak. This afternoon, when I came here, I was totally unprepared to discuss any question. I did not see the paper before it was read, and I did not hear everything that was said, but I gather from the general trend of the

discussion that it is desirable in all cases, wherever possible, to insert a gold filling in young teeth, in children, say, of fifteen or sixteen years. While I grant that the idea is a good one, in my practice I must confess that I have not been able to accomplish very much in regard to the inserting of fillings in the teeth in young people, partly for the reason that the parents or guardians frequently object to pay the fee, and you all know, if you have to spend double time in getting in a filling, the fee that would pay for an adult does not remunerate you sufficiently for doing the work for children. Generally speaking, I can complete almost any gold filling within an hour. In the case of children I generally have them visit me two or three times, before I can get the filling in. I hold that it is better to put in cement, even, to tide over a year or two, until they can appreciate the value of the work and are willing to submit to the operation. As regards the use of gutta percha, I did not quite understand what Dr. Ottolengui meant. Did he mean ordinary temporary filling?

DR. OTTOLENGUI.—No; base-plate.

DR. WOOD.—I cannot speak for that. I also wish to endorse what Dr. Johnson said about young men starting out. It has occurred within my own experience. I have seen them come from the same office, with the same training, from the same masters, and with apparently the same ability, and at the end of five years the results attained by one were entirely different from the other. I think the fact is attributable to what one gentleman said: the high ideal. One of them was satisfied to do everything that came along, in order to get a living; the other had a high ideal and always endeavored to do something better, next, or to improve upon what had already been done. The result was that after a while they had an entirely different class of people come to them. I will not detain you by attempting to make a speech. I am not a fluent speaker, nor am I a happy speaker, but I thank you again for the courtesy you have passed me in asking me to address you all. (Applause.)

THE CHAIRMAN.—I learn with pleasure that we have another Australian also in the room with us, and I am sure we would be pleased to hear a few words from Dr. Cohen.

DR. COHEN.—Mr. Chairman, ladies and gentlemen, I must repeat the remarks that my friend, Dr. Wood, has made, and I think it a very great favor that you should ask me to speak. I never expected to face such an audience of highly cultured doctors, and such a fine lot of men as are here present to-day. I would like to say a lot, but my heart is full, and I am afraid my nerves are not strong enough to allow me. With reference to the paper which Dr. Ottolengui has read, in regard to the filling of children's teeth with gold, I may say, in some respects, it is a very clever paper, though it would not meet every man's practice. What I mean by practice is according to the patient's means,



and what can best be done for the money. It is the dentist's duty to do the best he possibly can for his patients, in consideration of the remuneration he can receive for the work, and where he cannot put in a gold filling for the remuneration, let him put in an amalgam or any other plastic filling. If I might go into personalities, I might say that I am working in a town where the population are chiefly of a farming class. They are not very wealthy, but still they like to have their children's teeth cared for. They bring them to me saying: "Well, sir, I leave my children in your hands, I wish you to do the best you can. I cannot afford much." I cannot afford the time to insert a gold filling, but I do the next best thing. I have been in practice there ten years, and I have these same fillings standing now as perfect as the day I put them in. I do not say all of them are in that condition, but a great number of them are. I take as much care in putting in my plastic fillings as my gold fillings, and whether I manipulate a gold filling or an amalgam filling, I take as much care in preparing the cavity. I get it into a perfectly antiseptic condition, and when I am satisfied that everything is perfectly right, I take my cement and insert it into the cavity, and then I insert my filling, allowing it to harden sufficiently. I then clear off all my margins, being particularly careful that there is no cement overhanging any wall or any edge. I then, with a quick-setting amalgam, complete my filling, and I find that I get very good results, whereas, with a gold filling, I am sure the effect would not be half so satisfactory. I do not pretend to be nearly as good an operator as any of you gentlemen here; I am just speaking from my own experience. Another objection to the great amalgam filling is, as you all know, its tendency to make us do rather "sloppy" work, as Dr. Johnson has remarked, and it takes as much care and skill to insert a good amalgam filling as a gold filling. If a man were to do that, I think he will attain the same amount of prominence or eminence and gain the same position as a man who uses gold. Mind, I mean by that, if he takes as much care and pains, and as much pleasure in doing good amalgam work as he would in doing gold work. I might say a little more, gentlemen, but I am not a very good speaker, so I thank you again for bestowing on me the favor of allowing me to come here and say a few words. I shall never forget my visit to America. Everyone here whom I have met has been—well, I can't say how good, they have been more than brothers. It will ever be in my memory the pleasant and happy time I had while I was in Canada and the United States. I thank you again, gentlemen, for your kind attention. (Applause.)

THE CHAIRMAN.—We heard with pleasure this morning the complimentary remarks of Dr. Cæsar, when speaking about Dr. Johnson, and I even saw the latter blush, while Dr. Cæsar was speaking of him. I think I will therefore call upon Dr. Cæsar to say a few words.

DR. CAESAR.—I have not very much to say, Mr. Chairman. Perhaps I misunderstood Dr. Ottolengui's description of the filling of a tooth with gold, for children. I would suppose what he meant by children would be from seven, eight, ten, or perhaps thirteen years old. That is the class of children, or the class of patients that we have trouble to put our gold fillings in, nervous, high-strung children with sensitive teeth and cavities, not such as the essayist has described, but where the decay is very near the pulp-chamber, or even into the pulp-chamber. I want to ask Dr. Ottolengui if he is going to put a gold filling in that.

DR. OTTOLENGUI.—Certainly.

DR. CAESAR.—How are you going to do it in a high-strung, sensitive child? A nervous child cannot possibly sit out an operation of that sort. I suppose one of the most expert operators in the room, or one of the most expert operators in America, for that matter, is sitting just with us at this moment, and it is not long since we have heard him speaking. He would require an hour to do it, and is it possible for us who are not so expert and capable?—is it possible for us to keep a child long enough to make a gold filling, and is it practical? In my estimation, it is not. I say, far better fill it with phosphate of zinc, such as we can now, thanks to Dr. Ames, and leave that filling in temporarily for a year or so, or until such time as the child is capable of appreciating the value of a gold filling, and is willing to submit to the operation. And that is only one case that you will have to deal with. I do not agree with Dr. Ottolengui when he says that these cavities should be filled with gold. We will agree with him that the cavities should be filled with gold every time, and that the dentist is not true to himself, is not true to his profession, is not true to his patient if he will not insist on its being filled with gold. But I say, on the other hand, he is not doing the best for his patient if he takes a large cavity and fills it up with a gold filling in a highly-strung, nervous child of nine years old. Better far, in my estimation, and I am only speaking from my experience, and I have had lots of them to deal with. I say, let my friend from New York fill it with gold, but I will fill it with zinc phosphate rather than gold.

DR. WESTON A. PRICE (Cleveland).—I made up my mind that I would not say anything when I came in, and then I thought I would have to come down and cross swords with Dr. Ottolengui for over-taxing children, but I have come down now to fight his cause. I want to say, gentlemen, that in my estimation the greatest difficulty we have to contend with as dentists serving the public—serving a delicate humanity—is not the mechanical part of our work, not how we shall prepare the cavity for the child, or the filling material we shall use, but the attitude of the child to his or her teeth, after the first few operations. And if any man in this room, or the majority of you, were to go home



and follow out to the letter in every case the splendid ideals laid down by Drs. Ottolengui and Johnson, I believe you would do more harm than good; you would do more harm than to follow in the ways you are doing, because many children could not bear the pain without local anesthesia. If we were to take a large sensitive tooth—say a mesio-occlusal cavity, we want a great deal of extension to carry out Dr. Johnson's ideal, which many little patients could not, without great strain, submit. The point we must remember is that they will always have a fear and dread of dentistry, and we must keep their comfort at heart. Now, I am sure Dr. Johnson would not put in a gold filling for that nervous little child, nor would Dr. Ottolengui, possibly. But if we take these men literally and go and carry out their ideals, "extension for prevention" and "nothing but gold for children," we are going to produce the most awful affliction that we can possibly bring upon them, unless we anesthetize their teeth. Now, the great question is, how can we come as near to these ideals as possible, and give the patient the best service? These children's feelings have to be considered, and it is almost impossible for them to sit through an extended, painful operation of this kind. I do not mean to say that this is always the case. If the child is well and strong, and willing to submit to the operation at twelve or thirteen years, certainly put in the gold filling at that time. But, when the child is nervous, and fearful, put in gutta percha until he comes to an age that he understands the value of a gold filling and is ready to undergo the ordeal. But, how can we more nearly carry out both these ideals? The patient will not sit still and let us make an extension for prevention, in order to make an ideal cavity, because it "hurts so." That is the plain English of it, and if you make them stand it, you are doing wrong. Then, how can we do it? Gentlemen, I believe we can do it with cataphoresis—I am surprised you do not smile—but do you know cataphoresis will do these cases in an almost ideal manner. You will save time and you will have no pain. You will have your little patients leave the office without having been hurt, and you will have your ideal preparation of the cavity. None of us would, when operating on children, put in amalgam so often were it not for the fact that we cannot properly prepare the cavity to put in gold, so we are satisfied to consider it a temporary preparation, and put in some temporary filling, with the expectation that as soon as the patient can endure it, we will do a more thorough operation, and make proper extensions into the sensitive parts and put in more permanent work. But if we will use the best available means, cataphoresis, we can make extension for prevention immediately, and we can save more time than the time consumed. We can do work more quickly by using this anesthetic, and we let our patients go away with the feeling that the dental engine is not a horrible instru-

ment. Never, if possible, make them endure excruciating pain. Anesthetize the cavities so they will not feel any pain. Then you can prepare the cavity, according to your own ideal, and do it without pain to the patient. If you live five or ten years—and I hope we all will—you will be doing it that way yourself, I feel certain.

DR. NOLIN.—This discussion has been productive of much good result, being participated in by Canadians, Americans and Australians. I would like to call upon Dr. Giles to say a few words.

DR. GILES.—On the subject of cataphoresis I never got results. I always have my apparatus, but I cannot use them. I do not think I use them more than once a year. Perhaps there are men who know more about Dr. Price's technique than I do. That is all I have to say, Mr. President.

THE CHAIRMAN.—Are there any other gentlemen who wish to say something on this question? If nobody cares to add anything, I will ask Dr. Ottolengui to close the discussion.

DR. OTTOLENGUI.—I would say to Dr. Butler Wood, from Australia, that he has my sincere sympathy in not being able to get base-plate gutta percha in his country. He has my congratulations in being here, where he can get it, and my advice to him is to take home about 100 lbs. of it; he will need it. I wish to say a word more about oxyphosphate, and I am not personal, for filling teeth in young children it is mean practice. It is a subterfuge for getting more money out of a patient who imagines that at the time he cannot afford to pay for a gold filling. Oxyphosphate means several fillings and several fees. Now, I will tell you how to get paid for good work. In the first place, you know the child's teeth are valuable. It is for you to preach the gospel; it is for you to explain to that child's parents that every tooth in his head is worth at least \$100 a year, as long as he lives. (Applause.) It is for you to teach the mother, if she does not know any better, and if she does not know any better it is because bad dentists have not taught her. Teach that it is a great deal better that children should go barefooted and have gold in their teeth, if gold is best. Never mind what it costs. If a child comes to you when he is eight years old, and you are not the sort of dentist I consider you ought to be, you will put in oxyphosphate, say, and you charge him \$1. Next year he comes to you, and you charge him another. Next year you get \$1.50. Next year he is bigger, and the hole is bigger, and you want \$2.50. Now, you have secured \$6, whereas I would fill that tooth with gold the first time for \$5. The next time you take out the remnant of that last oxyphosphate filling and you find you will have to charge him about \$8 to fill it with gold, and the tooth is not as well filled as if you had filled it five years before with gold that would stand for five years and be just as good as the new



filling; indeed, better, because smaller. Now, everybody has thrown these sensitive children with sensitive teeth at me. Are those the only kind of children you have in Canada? We have them in the United States—some of them. Now, I will tell you something about filling children's teeth with gold. The question of filling root-canals is the most unfortunate thing in dentistry. There are some canals, the extremity of which cannot be filled. Now, I merely mention this as an example. If a man would say to himself, "There are men who are getting to the bottom of these canals, and I am unskilful if I don't get to the bottom," I assure you he will get to the bottom of more root-canals. Take the same thing with regard to the filling of these teeth. Don't pile up obstacles in the way of doing what is right, but learn how to overcome these obstacles; pull them down, and do what is right, and if you don't get paid in this world, you will get paid in the next. But to come back to the technique of getting your money; good work is going to pay you in this very world. I tell you that as a positive fact. At the outset of your career there is no greater asset that you can obtain than the respect and friendship of your people, for there is no person so poor that he has not a rich friend that he may send to you, and if you cannot get \$5 for a filling from a poor man, perhaps he can give you 50 cents, and maybe he will send around somebody who wants \$50 worth. But do your work right every time, and when it is finished once, it is finished forever, and you will have the honor and satisfaction of knowing that you did it right from the first. And that, I tell you, is the greatest pleasure in dentistry. You should not be too radical, but you must fill every cavity that you possibly can with gold. I have never said that if you have an over-sensitive child you must tie him down in the chair and hammer gold into his teeth, but if you establish the rule that gold is best, you will use more gold and less amalgam. I am willing to admit that this rule is not so binding that I never do anything else; I am obliged to do other things sometimes. Most of us are obliged to do things that we do not care to do, and when it happens that I am compelled to do it, I do it under protest. I sometimes postpone gold and put in gutta percha, because it has been my experience that pink gutta percha is safer in the tooth, because you are less liable to be called upon to enlarge the cavity when refilling than with any other material, but generally, you are perfectly safe with it, because if it is worn away to a considerable distance, it still protects from decay, but amalgam wears away and it makes a beautiful receptacle for all debris, and the decay may go on around the edges. In other words, you should not allow people to believe that your temporary filling is a permanent filling, and be sure that amalgam is only temporary in children's teeth. Tell them it is only to remain until you can put in gold.

THE CHAIRMAN.—The time has now come, gentlemen, that we should adjourn, if there is no further discussion on any point which should properly come before the meeting at this time.

There being no further business the meeting was thereafter adjourned.

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MONTREAL, Thursday, Sept. 18th, 1902.

The meeting was called to order at 10.30 by the Chairman, who said: Gentlemen, if you will kindly come to order, we will begin the business before the meeting. I will call on Dr. Wilkinson to read his paper on "The Treatment of Roots that are Often Consigned to the Forceps." (See page 77.)

#### DISCUSSION.

THE CHAIRMAN.—I am sure we have all been gratified by listening to this most interesting paper. I think it is the best presentation that I have ever heard on the subject. I will call upon Dr. Moore, if he is present, to open the discussion on the paper. The paper is open for discussion, and I would suggest that the members be brief and as much to the point, because there are two or three other papers to be read, and time is passing. As Dr. Moore does not seem to be present I would ask Dr. Eaton, of Toronto, if he would like to say a few words.

DR. EATON.—Mr. Chairman, ladies and gentlemen, I did not prepare myself for any discussion on the paper, and anyway I heard only part of it. I glanced over it before the meeting, and I think there is nothing of interest that I can bring out. There is one little point that struck me, as I came in. I heard the Doctor reading—possibly I might have misunderstood him,—but with reference to the treatment of an abscess with a fistulous opening. I think he made use of the expression that he treated the abscess one day, dressed it, and finished the second day; whether he means by the second day, the day following, or the second sitting, I do not know. I do not know whether he had spoken before that with reference to the after treatment, in case it was necessary, but in case he might have run up against carious bone or an absorbed apex, or any other complication, in filling it the next day, as I understood him, he would not have that condition overcome, and it would require further treatment through the fistula, amputation of the apex, for instance. The doctor probably will clear up that point. I have nothing further to add. I feel like paying a compliment to the essayist on his attempt—his honest attempt—and I know in his practice he lives



and while perhaps there might be danger in carrying the matter a little too far, yet I think we are erring on the right side. There is the satisfaction at least of knowing that we did the very best we could, and I know that Dr. Wilkinson has had great success in restoring teeth that under ordinary circumstances would be consigned to the forceps.

THE CHAIRMAN.—Dr. Moore has just come in, and I would ask him to discuss the paper now.

DR. J. W. MOORE, St. Stephen, N.B.

*Mr. Chairman, Ladies and Gentlemen,*—Although claiming no originality in this paper, the writer must be complimented on the thorough manner in which he has presented this very important subject, "Preservation of Roots Usually Consigned to the Forceps."

In comparing our work with that of the general surgeon he shows the "principle of preservation" to be equally applicable in theory to our work in dealing with those teeth and roots that are apparently beyond being restored to usefulness and beauty by filling, yet in our attention to these cases he calls us to note the great variance in methods of practice existing in our profession to-day, instead of a uniformity and harmony of action in carrying out this principle of preservation, and in referring to the "back number" and the "upstart" in the methods of their respective classes, also to the old ideas and the new, he enjoins us to prove all things and hold fast to that which is good, arriving in time at definite principles which will bring about a uniformity of practice.

We must all agree then with the writer that extraction should be resorted to only when actually necessary; that we take to mean, when impossible to restore to healthy condition under the circumstances of the case, which are various.

It might be possible to restore to healthy, useful organs, badly decayed and broken down roots even in the most unfavorable conditions, if our patient could be near at hand and call to receive the attention and treatment as it is needed; yet, in the case of a patient living at a distance from his dentist, or being engaged so as to interfere with the systematic treatment necessary, the same condition of roots would be considered beyond recall and fall a prey to the forceps. He shows the value of roots restored to health and usefulness in mastication and also in retaining the facial and dental harmony. In the first case, although requiring considerable skill and time to restore, they will, with the other teeth, give a masticating ability of from four to five times that of artificial dentures, and in this measure are exerting an influence in favor of the health of the individual which cannot be

calculated. On the other hand, or in the second case, by their restoration the facial and dental harmony are retained, giving youth and beauty in the place of the wrinkles of old age, which follow the absorption of the alveolus after extraction, and which no artificial appliance can in full correct.

Of the teeth being extracted in Canada, our writer claims that 90 per cent. could be saved, and that only 10 per cent. are beyond hope and must be extracted. The hopeless 10 per cent. he classifies in a way to include all the cases which we meet in practice that are condemned by all practitioners.

The 90 per cent. that may be restored are also classified under heads, giving methods of treatment and restoration for each case which has been successful in his hands.

These methods of treatment with the medicaments named may not be endorsed by all, yet in our own practice, if we follow out the course as he outlines: First remove cause, then treat to assist nature to a healthy restoration, we may be equally successful with methods slightly different, and, with other agents, in bringing about the same results.

As dentists we are to blame for patients coming to us, telling us what they would like us to do for them, instead of consulting us (as they do their physician) and putting themselves under our professional care to do for them in the way of treatment and operation what we think is to their best advantage.

As a class, our patients only know what we teach them. If we advertise as in some lines of business, they no longer treat us (like their physicians) as professional men, but purely as business men, with something to sell, so we have taught them to come to us, telling us of what they want, teeth extracted, gold crown, bridge, etc., overlooking the fact that the dentist should be consulted as to his professional opinion in the case.

We must follow a more professional method of conducting our practice. We must have advice to give and services to render, but nothing to sell.

When we get our patients to that conception of the dentist we will then be able to carry out our theories in regard to the "Preservation of Such Roots as are Usually Consigned to the Forceps."

DR. MOORE.—I am sorry, gentlemen, that I was out when the paper was read. I understood that the programme was changed, and that "Dentists in the Army" was to be brought on this morning. I was watching the clinics upstairs.

THE CHAIRMAN.—Is there any further discussion on this paper, gentlemen?

DR. ———.—With the fine paper and explanation given by Dr. Price last night, I would like to recall a little item that I saw in the DOMINION DENTAL JOURNAL, which is quite in contrast. It was a statement made by a certain gentleman, I for-



get his name, but he said he had given gas for the extraction of teeth eight thousand some hundred times. I do not know whether the gentleman is more than seven or eight hundred years old, but the contrast between the high ideal set forth by Drs. Price and Wilkinson, and the method of that gentleman brings me to my feet. I think the skiagraph shows many failures in the attempt to save teeth, and according to Dr. Wilkinson, it is the high ideal that we should save as many as we can, and although there may be a percentage of failures, still the results as shown are very worthy of the effort of all; and I hope that the gentleman who made this statement about the eight thousand extractions with gas, and I presume a great many without gas, is here; he will be able to go back with a better idea of what his purpose in life should be.

THE CHAIRMAN.—It seems to me that there should be several questions asked Dr. Wilkinson upon the paper; it is a very important subject.

DR. BROWNLEE.—Mr. Chairman and gentlemen, the high ideals that have been advanced in every line of dentistry since we came together has served the profession very much, and it shows that it is a good thing for us to congregate together; and it also shows that those of us who graduated many years ago have not lost the desire to advance professionally with the present privileges which are enjoyed by the young men. When I graduated twenty-three years ago, there was no such thing to be had, in our colleges at least—that is, in the Ontario colleges—there was no such thing to be seen there as the making of a gold crown or the insertion of a bridge, or the proper treatment of roots as they are treated now, and it is indeed a worthy object for every man, for the older practitioners or the younger practitioners, to advance to the high ideals which have been presented to us since we came together. It is a pleasure for us to listen to the papers on advanced dentistry, if I might so express it, and wonderful indeed to those who took their course years ago; the paper just read shows how rapid has been the advance in that line of treatment. The advance has been in the interests of patients and in the interests of the profession of which we are so fond. The means which Dr. Wilkinson adopts are worthy of the highest commendation. We may not all see alike; I would differ from Dr. Wilkinson in some points, but we learn from the discussion of those points, and our interchange of thought must be beneficial to each other, for instance, in the filling of roots I prefer gutta percha entirely because it conforms to the diversity of form. It conforms to the tortuous canal or to any shape of canal almost that may exist. There are none of us who can reach the apex of every root, but those which we do reach I think we do properly, and when they are reached I think we should all endeavor to get disinfection as far as possible—disinfect thor-

oughly, and then we can get up behind with our medication. I would not like to go so far as Dr. Wilkinson does in the immediate filling of the root-canals. Most of our patients are so situated that they can return, and I would rather have this than stuff in a filling at a second sitting. I would not fill a tooth with a fistulous opening, at the second sitting. Before I came away from home, I had a case which had come to me some weeks ago, and I think I had seen that patient four or five times, and still it was not fit for filling. I would be sorry to risk the comfort of the patient and the future of the tooth by filling it quite so soon; however, there are some cases in which you would not have any bad results; but there are others with which I have been unfortunate.

With reference to the opening of canals, I prefer a Gates-Glidden drill, but I would not go far into the canal without removing the debris with a broach. I would not go far up the canal with a drill, I would remove the debris and disinfect, and I certainly would not jamb the drill far into the canal. The Gates-Glidden drill is a splendid instrument, if properly used. I think it is one of the best instruments we have for opening into the canal, so that we can get directly into it, and can remove the debris more rapidly and with better effect. I would favor the thorough disinfection and testing of the teeth, packing the medication in with lint or cotton before I would attempt to fill them.

DR. R. WILLMOTT.—Mr. Chairman and gentlemen, I shall not take up much time, because I know time is precious, but I would like to ask Dr. Wilkinson to explain one little matter, to make me clear. It is with regard to the filling of accidental perforation. If I understood the doctor correctly, he said he generally, or always filled them, covered them over at least, with a little foil. But as many of these perforations are made well up in the small and tortuous canals, and it would seem to me a difficult matter to fill them in the way the doctor describes, I would like Dr. Wilkinson's explanation on this point.

DR. MOYER.—Why does Dr. Wilkinson consider it necessary to wait a month, in the case of a blind abscess, when we have destroyed the poison in the canal, which is the cause of the irritation? When that is destroyed, and we have established drainage, and everything is all right, why should we leave it open any longer? What does the doctor anticipate by closing it, say, at the end of a week? I believe, in some cases of abscess, where there has been an external opening, to keep it open for a while; but I don't think I would fill it the next day; still, when the poison is removed, there is not much danger in filling it, if there might be diseased bone, or some deposit on the end of the root. If you leave it open, you will have the conditions there. You can fill and you can treat it from the outside if necessary; but, generally, once the poison is removed, the healing will take place from within outwards.



DR. W. PRICE.—I am sorry to take up the time of the meeting, but I have heard considerable about antiseptic. How many of us collectively use perfectly antiseptic material? We keep our drills, and points, and things of the kind in little wooden boxes lying around for a month or so, and then take them out of the box and put them into the root, perhaps dipping them into some solution, but without testing to see whether they are well sterilized. I have skiagraphed a great many roots that have been filled, where the pulps were devitalized, and I found in a great many cases that the infection had been carried into the roots on the filling material. I have come to the conclusion that the majority of dentists are carrying infection into the teeth on their instruments and filling materials, without realizing it.

DR. EATON.—I would like to ask Dr. Price how he overcomes the infection that would be gotten by twisting the cotton on the broach with the fingers.

DR. PRICE.—I would say this, as an example of one of the easy methods by which we can carry infection into the teeth unaware. I would use only sterilized cotton and a perfectly sterilized broach also, and the root is one in which the pulp has been devitalized, so there is no infection there; and if we dry with cotton which has been put on an imperfectly sterilized instrument, or which has been exposed in the holder uncovered, for a week or so, and we are handling dirty instruments, we are very liable to carry infection. Now, that only emphasizes the great importance that it is to be careful. The dentist does not mean to carry infection into the mouth of his patient, but he is not aware of it; and we must contrive some way that will enable us to avoid it. If your hands are liable to carry the infection, then you must not let your hands come near anything that is going into the cavity. The method that I have been using is, buy some little points already twisted. They are made of tissue paper very fine and hard. They will go into almost any canal that a broach will. I get these sterilized, and I can take them with the forceps to the bottom of the root. Why do we use cotton to dry the canal, when we are liable to carry infection on it? If we use a continuous blast of hot air, we can dry it much better; then if we use the electric root dryer, we can dry it to perfection, and we can dry up to the apex of the tooth, and do it much more efficiently than we could with cotton.

THE CHAIRMAN.—This is a most interesting subject, but through sheer lack of time it will be impossible for us to have any more discussion upon it, and I must call upon Dr. Wilkinson to close the discussion.

DR. WILKINSON.—Mr. Chairman and gentlemen, I am very much pleased indeed with the interest that has been taken in the paper. I shall be as brief as I can. Dr. Eaton questioned the wisdom of filling the canal on the second day in connection with the treatment of an abscess with a fistulous opening. I shall just

say that if the root has become sterilized by the antiseptic agents which were used the first day, I see no harm in filling the root. You will observe that the root-canals are filled at the second sitting, which may be the following day. After the contents have been completely removed, and the canals rendered aseptic, then why leave for a month? Fill, and get rid of the trouble in the root-canals. Further treatment can be given through the fistulous opening, if necessary. In reference to Dr. Eaton's suggestion as to complications, necrosed bone and carious areas, the same remark would apply. Treatment, if necessary, through the fistulous opening. I appreciate the kindly spirit and consideration shown by Dr. Moore in the discussion of the paper; but I had hoped and intended—and in fact would have been much more pleased, had he brought out more points, in order to emphasize the main point, that of preserving roots and using them to the farthest possible degree.

The gentleman on my right, referring to a dentist boasting of the number of extractions he had made, I must say that I, too, have made many extractions, which I cannot boast of. There are some teeth, however, the roots of which cannot be saved by an ordinary treatment, and these must be extracted.

Dr. Brownlee, referring to those who have graduated years ago, I tried to give prominence in the paper to the idea of the older man being the most advanced. He has all the benefits we have, and personal experience in addition. Some of us who are young never intend to become a "back number." Filling at the second sitting, I must just repeat what I said with reference to Dr. Eaton's statement. One gentleman (some one on the left side of the hall) asked about filling large apical openings. The card which I have sent around among you gentlemen will explain my procedure far better than I can describe it. The root-canal has a large opening, perhaps funnel-shaped. First get a Gates-Glidden drill, of a size that you can safely run right through. We take the measurement with one of these Donaldson hooks passed through the little opening, and as soon as it is through, it will catch on the wall; then it is marked and may be withdrawn. Next use a Gates-Glidden drill a size larger, and run it right up to about one-sixteenth of an inch from the end of the root. Now, you drill through a tooth-brush handle, or a piece of ivory, or a piece of bone, two holes, in exactly the same way, one of the large size and one of the small size, followed by the larger till within one-sixteenth inch of being through. Prepare, then, a tin plug that will fit these holes, and try it in to see that it fits exactly. After it has been tried in, snip off the end, and force it up in the canal, as far as it will go, filling the remainder with an material desired. (Illustrated by drawing.)

In reference to filling perforations, I must say to Dr. Willmott that I cannot always fill such perforations as he describes



away towards the end of the tooth, but I do the best I can and then trust. The best I can do will be to fill, if possible, first the end of the canal beyond it, and I have a hard time to do it in some cases; still I will not give up till I have done everything possible. If the perforations should occur on the distal walls of bicuspid teeth they are easily managed, and may be covered by a piece of tinfoil.

Dr. Moyer asks why I would allow a month to elapse before filling a root having had a blind abscess? Dr. Moyer speaks as a deep thinker. The reason that I do this is to allow the abscess to heal as much as possible before filling. We have many blind abscesses which extend down around the roots, and I cannot establish drainage from lowest points unless there is a fistula. I cannot even get my medication in by any pressure. There would be some places that I could not get at, except by vapor or volatile agents. That is why I leave it a month for successful treatment. Sometimes I would not take a month, but I have had failures in some cases after allowing even a longer period for treatment. Of course, if it was a fistulous abscess there would be no necessity for waiting so long.

Dr. Price refers to sterilizing. I am glad of that. We cannot have too much of that spirit of thoroughness; but I think if many of us would use even common cleanliness to the furthest possible degree, we should be doing better than we are at present. In connection with the electric canal-drier, some of us may not have any electric apparatus, and one method that I have found successful is to take a hot iridio-platinum broach and force it up the root-canal. Heat it over the spirit-lamp till it is red. It will accomplish anything that the electric drier would.

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## ONTARIO DENTAL SOCIETY.

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The Ontario Dental Society held its fourteenth annual meeting in the Dental College building, February 9th, 10th and 11th, 1903. The meeting was distinguished for its large attendance, the excellence of the essays, discussions and clinics. The banquet was a feature of the meeting, being held in the clinic room of the college, it affording special accommodation for such an affair. The speeches were uniformly excellent, especially that of Rev. Mr. Macdonald, the recently appointed editor of the *Globe*, whose address excelled in wit, inspiration and sound moral philosophy. A more complete report will appear in the next issue of the *DOMINION DENTAL JOURNAL*.

### ROYAL DENTAL SOCIETY.

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The Royal Dental Society held its regular meeting for December on the 15th. The following programme was rendered: Violin and 'cello duet, Messrs. Husband and Cummer; piano solo, Mr. S. Thomas; paper, "Preparation of Roots for Crown and Bridge Work," Dr. Ball; vocal solo, Mr. Fred. Curtis; address, "Dickens' Bad Boy," Mr. James L. Hughes; vocal solo, Mr. Emerson Morton; paper, "Pyorrhea Alveolaris," Dr. J. P. MacLachlan; mandolin solo, Mr. H. Sanderson; vocal solo, Mr. Harwood.

CHARLES WALT, '03, Secretary.

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### ROYAL COLLEGE OF DENTAL SURGEONS' "AT HOME."

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That the annual function of the school of dentistry, Royal College of Dental Surgeons, is a very popular one, was fully manifested Friday evening, December 12th, when the seventh "At Home" was held in the Temple Building. The Dental "At Home" has come to be looked upon as one of the most enjoyable events of the season, and this year proved to be probably the most successful yet held. A large percentage of the students attended, showing that they appreciated the fact that a student's education extends beyond his college curriculum, while quite a number of graduates took the opportunity to renew acquaintances with their alma mater.

Before dancing commenced Dr. Beattie-Nesbitt presented to the college the Beattie-Nesbitt cup, the hockey trophy, to be competed for by the various years. The Dean made a happy response in accepting the cup, touching upon the advantage of a student interesting himself in the college sports.

The large assembly room was tastefully decorated with the college colors—garnet and light blue—while from the dias the Glionna-Marsicano rendered music to please the most fastidious. On entering the hall each guest received a programme, which brought forth many compliments on the originality of the committee. On the front was the college crest, while an engraving of the college colors bound the edges. The programme was comprised of twenty dances, three extras, and numerous extra extras, all of which the jolly dancers seemed to enjoy, judging by the few who elected to "sit out."

Supper was served at eleven o'clock in the refreshment room, which was also made gay with college bunting, the tables being prettily decorated with flowers. The patronesses were: Mrs. Hanna, Mrs. Loudon, Mrs. J. F. Ross, Mrs. Cecil Trotter, Mrs.





AT-HOME COMMITTEE, ROYAL COLLEGE DENTAL SURGEONS, 1902-03.

Those standing, from left to right, are : W. Bonney, L. G. Thomson, Dr. Earl Willmott, F. L. Williamson. Those seated, reading from left to right are : Messrs. W. H. Caverhill, W. J. McMurray, F. W. How, H. Popplewell, G. B. New, G. A. M. Adams, W. Kennedy.

W. Earl Willmott, Mrs. A. Primrose, Mrs. Harold Clark, Mrs. W. T. Stuart, and Mrs. J. J. McKenzie.

Representatives from the sister college attended, and one and all declared the dental students the kindest of hosts. These were: Wycliffe, Mr. F. Hopkins; Knox, Mr. J. A. Whillans, B.A.; McMaster, Dr. C. C. Sumley; Victoria, Mr. E. C. Irvine; University College, Mr. Wm. Treadgold; School of Practical Science, Mr. F. White; Trinity Medical College, Dr. Loucks; Medical Faculty; Pharmacy; Ladies' Medical College; Buffalo Dental College, Mr. Chas. Rowland; Quebec Dental College, Mr. C. Tansey.

At the conclusion of the "At Home," which all present voted a grand success, the committee entertained the representatives at a banquet, where speeches and stories were the order of procedure.

The committee in charge were: H. Popplewell, D.D.S., '03, Chairman; F. How, '05, 1st Vice-Chairman; G. New, '06, 2nd Vice-Chairman; W. Kennedy, '03, Treasurer; F. S. Williams, '03, Chairman Decorating Committee; W. J. McMurray, '03; W. Bonney, '05; L. G. Thomson, '05; G. Adams, '05; Dr. W. Earl Willmott, representative from Faculty, and W. H. Caverhill, '05, Secretary.



# Dominion Dental Journal

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VOL. XV.

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No. 2.

## SUITS FOR DAMAGES AGAINST DENTISTS.

In this issue appears a full report of the judge's charge to the jury in the case of Hendren *vs.* Sparrow. A very fair understanding of the case can be made out from the judge's charge. The full report is given to show what was charged against Dr. Sparrow, and to what extent he might be held liable for mishap. On the first proposition submitted by the judge, the jury could not agree, on the second they agreed that no negligence was proven; there being no negligence the judge ruled that there could be no damages, there being no damages no decision was necessary on the fourth proposition. Any dentist might have the misfortune of allowing a tooth to slip from his grasp and it cause serious damage, and no negligence could be proven, and yet a suit for damages instigated. Dr. Sparrow in this case did not lose track of any of the teeth he extracted, and yet the woman coughed up the root of a tooth a few weeks later. Just how or when the tooth got into the woman's trachea was not clearly shown. But the fact remains that Dr. Sparrow had to defend a suit for damages at a great expense of time and money which could have been settled out of court for a small sum, but to do this would have placed him and the profession in the position of admitting that the dentist is liable for accidents, though no negligence is shown. Inasmuch as this case was fought out to a finish and goes on record in the courts acquitting the accused, the

profession owes Dr. Sparrow a debt of gratitude, and, in fact, he should be helped to bear an expense that was taken upon him for the good of the whole profession.

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### Editorial Notes

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FORMALDEHYDE.—A drachm or two of formaldehyde will deodorize a spittoon for days. A 10 per cent. solution will disinfect instruments in ten to twenty minutes.

LUBRICATING DISKS.—Castile soap serves almost as well as vaseline for lubricating and making flexible disks and strips, and has the advantage of being more cleanly.—*E. Cunningham.*

OLD BURS.—Old worn-out round burs may be made into inverted cones by grinding them flat on the end, so that the flat plane is at right angles to the shaft. They should be ground to the depth of half the diameter of the bur. They may be frequently ground to sharpen them. These are very useful for cutting old amalgam fillings.—*W. H. Hersh, D.D.S.*

CARBONIZING DIES.—A carbon flame, giving out very little heat, can easily be made by saturating a pellet of cotton with the shellac which is used in the laboratory. When ignited and the alcohol is burned off, there remains a carbon flame which will readily carbonize dies for crown and bridge work, or metal plate work without heating the die.—*J. R. Watt, D.D.S.*

It has been recommended that old inverted cone burs and fissure burs be ground on two sides, making a hatchet-edged drill, which is useful to cut out fissures and amalgam. This instrument has the decided objection that it transmits quite a jar to the tooth when being used. A better instrument can be made by grinding two sides of a fissure bur flat and parallel, and then put a regular spear drill point on the end. This instrument transmits no shock to the tooth, and seems to cut much better than a spear drill.—*E. Cunningham.*

IN a suit for damages in an Australian court, a dentist had to pay sixty dollars in two cases, because there was swelling and pain following the extraction of teeth. It was shown to the satisfaction of the judge that cocaine had been injected with an unsterilized syringe. Judgment was given against the dentist, because he failed to exercise surgical cleanliness, not because it was proven that the pain and swelling were caused by his unclean instruments.

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A BOY eighteen years of age, with four years' experience in a Laboratory, wants a position as an assistant in a Laboratory. Can give good references. Address, D. J., Box 225, Chatham, N.B.



# Dominion Dental Journal

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VOL. XV.

TORONTO, MARCH, 1903.

No. 3.

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## Original Communications

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### GENERAL ANESTHESIA AND SOME OF THE MORE IMPORTANT ANESTHETICS.

BY C. N. ABBOTT, D.D.S., LONDON, ONT.

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Read before the Toronto Dental Society, Dec. 14th, 1902.

The term anesthesia was introduced into medical nomenclature in 1847 by the late Sir James Simpson. As its derivation implies, it means the state of being without sensation. To produce this condition artificially, substances known as anesthetics are employed. We therefore define an anesthetic as an agent which possesses the property of abolishing sensation. In medicine anesthesia is used to alleviate pain, as an aid to diagnosis, to relax spasm, etc. This idea of annulling pain dates back to the olden times. Such methods as compression of the nerves and blood vessels, the inhalation of the vapor of mixtures containing carbonic anhydride, etc., were practised at an early date. Pliny speaks of a wine of the root of the mandragora, which was used to induce sleep. Lucius Apullius, who lived about A.D. 160, writes that, "If a man has to have a limb mutilated, sawn or burnt, he may take half an ounce of this wine, and while asleep the member may be cut off without pain or sense. Such drugs as cannabis indica, opium, and carbonic oxid were used by the ancient Chinese to annul the pain of wounds. Previous to the nineteenth century, little progress was made in the use of anesthetic drugs, most surgeons being content to annul pain by intoxication from alcohol, administration of opium, etc. During the latter part of the eighteenth century oxygen, nitrogen, nitric oxid, etc., were prepared and closely studied, and in 1772 Priestley added nitrous oxid gas to this list. In 1799 Sir Humphrey Davy discovered the exhilarating properties of nitrous oxid gas. Having inhaled it to relieve the pain of an erupting wisdom tooth. In 1844 a Hartford dentist, Horace Willis, interested himself in this agent, and did much to advance an interest in this anesthetic. However, largely owing to faulty apparatus and im-

pure materials, he was led to discontinue his investigations. His chagrin at his failure became so great that his mind gave way and he died by his own hand in January, 1848, a sad ending for one who should have been honored and rewarded by his fellow-men for a discovery from which dates the commencement of modern painless surgery. In 1846 Dr. Morton, a dentist in the city of Boston, introduced ether, and was entirely successful in its use. The news of his discovery rapidly spread, and before long this agent was very largely used. In 1847 Sir James Simpson, of Edinburgh, discovered the anesthetic power of chloroform, and its agreeable properties soon led to its general use.

#### PREPARATION OF PATIENT.

Advantage should be taken of every assistance that in the slightest degree will aid nature in withstanding the strain to which she is subjected. Particularly in the weak or neurotic we should consider time of day. It is not wise, particularly in these individuals, to give an anesthetic after a long fast. The best time for an operation of selection is either in the morning or in the early afternoon, and at least three hours must elapse after a meal before giving an anesthetic. The diet of a patient previous to the taking of an anesthetic should be something light and easily digested, say a cup of tea or coffee and some toast. In some cases a tablespoonful of brandy given a half hour before operation will do good. Opiates, such as morphia, atropine, strychnine, etc., are advocated by many. They undoubtedly act happily in lessening stage of excitement, amount of drug and amount of vomiting, but they also, to a greater or lesser degree, destroy pupillary reflexes. Atropine, in particular, is a splendid vaso-motor stimulant, and is highly recommended by some of the best authorities. No patient should be anesthetized without an examination of the character and force of the pulse, the condition of heart and lungs. We should also see that the mouth contains no foreign materials. It is a good plan to have the bladder empty. Perfect quiet should be maintained. Nothing like a tight band or garment should be tolerated on throat, chest or abdomen. All sources of excitement should be removed, such as the sight of instruments, the presence of strangers, etc. The temperature of the room should not be below 70 degrees F., and should be large and airy. All appliances and drugs for resuscitation in emergencies should be close at hand and in working order, such as a hypodermic, with solutions of strychnine, digitalis and brandy, a pair of tongue forceps, and a good mouth-gag. Accidents are rare, but one should always be prepared for an emergency. We should also have a competent assistant close at hand.

#### CHLOROFORM.

Chloroform is a clear liquid, with an exceedingly hot, burning and sweetish taste, and of rather agreeable odor. It is a very



volatile liquid. For purposes of anesthesia, one should always use either that made by Duncan and Flockhart or Squibbs. Chloroform should be kept in a cool, dark place; it decomposes if exposed to sunlight, and develops hydro-chloric acid, carbonyl, chloride and chlorine, rendering it unfit for use. Chloroform, to be fit for use, should be absolutely transparent and colorless, neutral to test paper, non-irritating when inhaled, and should evaporate entirely, leaving no odor or residue.

Chloroform, when inhaled, causes a feeling of warmth in the throat, a feeling of relaxation, and finally unconsciousness. The respirations are first full and deep, but soon become shallow and quicker. The pulse may be stronger and fuller, but soon fails in strength and quickens. It but slightly irritates the air passages, does not often cause the primary arrest of respiration as does ether. The pupils first dilate, but are contracted during anesthesia. If, after this contraction, they suddenly dilate, it is a sign of danger, and death is imminent. With the muscular and also in alcoholics struggling is likely as an early symptom. Where this is the case, it is unwise to push your anesthetic.

Chloroform first affects the brain, then the sensory part of the spinal cord, then the motor tract of the cord, then the sensory part of the medulla oblongata, and finally the motor part of the medulla, thereby producing death from failure of the vaso-motor centre and of the respiratory centre, unless, as rarely occurs, the heart has already succumbed to the drug.

Much dispute has arisen as to whether the respiration or the pulse is the most important to watch with chloroform anesthesia, but the consensus of opinion to-day inclines to give first attention to the respirations. The cause of death from chloroform is usually due to a vaso-motor depression whereby the arterioles allow the blood to pass too freely into the capillaries and veins, and as a result the patient is suddenly bled into his own vessels as effectually as if into a bowl. When it is remembered that the capillary network of the body will, with the relaxed veins, hold many times the normal quantity of blood, and when we know that we can inject salt solutions into the vessels to the extent of several times the normal quantity of blood without raising the blood pressure, it becomes evident that the complete vascular relaxation caused by chloroform results in failure of all the vital functions, not because the drug has paralyzed the heart or respiratory centre, but because these parts are destitute of blood, due to its stagnation in the widely dilated capillaries and abdominal veins. Therefore, death from chloroform is equivalent to that resulting from hemorrhage. For years back we have read of deaths under chloroform, where patient had been sitting up or half recumbent, because the blood-paths, being dilated, this posture favored anemia of the vital centres. Atropine has been found one of the best vaso-motor stimulants, and if given previously to administration, increases safety of patient, and that compression of the limbs

by bandages does likewise. Abdominal compression also aids in forcing blood from the distended abdominal veins to the heart.

In the use of chloroform, always keep the head low, precede the drug by atropine hypodermically, bandage the limbs if the case is feeble or weak by loss of blood, and, if necessary, place compresses on the abdomen, and apply them deeply by pressure if failure of the circulation develops.

As an intact respiratory centre means regular breathing, we watch this function to determine dose of chloroform actually inhaled, and because any variation in this function, as shown in irregular breathing, means that the chloroform is disordering arterial tension.

Chloroform is to be preferred to ether in the case of children under ten, when the outflow of bronchial mucus is liable to asphyxiate. For people over sixty, free from advanced cardiac disease, at which age most people have bronchitis, ether also irritates the kidneys, which are very likely to be weak or diseased. Chloroform is often preferred for operations about the mouth, as its use causes less coughing and salivary flow. Also in patients where there is any difficulty in respiration, kidney disease or diabetes. Ether is safer for patients with heart disease. During the administration of anesthetics the bodily temperature drops from one to three degrees, and hence should always maintain a temperature of at least seventy degrees in the operating room.

In administering chloroform it must be well mixed with air. It may be given on a towel, folded in shape of a cone, or from one of the numerous inhalers. Eshmarch's is one of the simplest and best of these. After placing patient in recumbent position, with everything loosened about neck, chest, and abdomen, and seeing that all foreign matter is removed from the mouth, we may proceed by dropping a few drops upon gauze and holding it a few inches from the face. After the lapse of a few minutes, place inhaler upon the face and gradually drop by drop add the drug. As long as breathing is regular there is absolutely no danger whatever in pushing the anesthetic till full anesthesia is produced. Irregularity of breathing is generally caused by insufficiency of air, which makes patient choke, struggle, or hold his breath. Full anesthesia is indicated by insensibility of the cornea, also by stertorous breathing, or by complete relaxation of the muscles. Just as soon as reflex is abolished or breathing becomes stertorous must withdraw anesthetic. It is dangerous to push any anesthetic agent to complete muscular flaccidity.

If during administration the heart or respiration suddenly ceases, and in some cases this is preceded by a peculiar shade or cloud passing over the face, the anesthetic must be immediately withdrawn, and artificial respiration and stimulation resorted to. Strychnine is perhaps the most valuable drug in this condition, administered hypodermically in doses of one-thirtieth and up to one-tenth grain in severe cases. The patient must be held head



downward, to send blood to the brain. Bandages should be applied to extremities, and compression by bandages and large compress be exercised on abdominal contents. The tongue should be grasped by an assistant, and traction made upon it from ten to fourteen times a minute. This not only opens up the trachea, but also stimulates the diaphragm. Pouring ether on abdomen will also act by stimulating the diaphragm. The poles of a battery with a rapidly interrupted current may be swept over the body. These and other means of resuscitation should be kept up for an hour after apparent death.

#### ETHER.

Ether possesses a peculiar penetrating odor, a hot burning taste, and is a colorless, volatile and very inflammable fluid. The vapor is heavier than air, and we must be careful of this agent in the presence of any flame. Ether, when its vapor is first inhaled, causes considerable irritation of fauces and respiratory tract, so that temporary arrest or respiration is not uncommon. The face becomes suffused and red, and the conjunctiva injected. Owing to these conditions the patient often struggles violently to get away from the drug, but a stage of quiet soon succeeds this primary stage of struggling. During this period of quiet the breathing is generally full and deep, and the pulse rapid and strong, while the ocular reflexes are at its beginning intact. Following this stage, a second period of struggling comes on, in which often nothing but brute force will restrain. Yelling, shouting, crying, etc., may be prominent symptoms, depending largely upon temperament. By pushing drug now this stage is soon passed, and is succeeded by total unconsciousness and quiet. This is the stage in which to operate.

Where we have death from ether it is caused by respiratory failure. Ether is one of the most diffusible and rapidly acting cardiac stimulants. It increases the pulse rate and force by stimulating the heart and arterial pressure, by increasing the activity of the vaso-motor centres. In overdoses it acts as a cardiac depressant, but only when amount is excessive.

Ether is a safer drug than chloroform, the mortality being about one in twenty thousand cases. When it is pushed too rapidly deep cyanosis, with pulsation of jugular veins, shows want of oxygen and cardiac distension. In most all cases of sudden death from ether it has been found to have been due to some grave lesion of kidney or heart. In the administration of ether great attention should be paid to the movements of diaphragm. When this ceases to act anesthesia has been carried to its extreme legitimate limit, and the use of more of drug must be with the greatest caution. The diaphragm is the first part of the respiratory mechanism to yield to respiratory paralysis. In death from any cause the progress or failure of respiration will, in the vast

majority of cases, be denoted by a failure on the part of the diaphragm primarily with compensatory excursions of the chest.

The treatment of accidents under ether consist of, firstly, the withdrawal of the ether, the use of artificial respiration, lowering of the head, or inversion if the face is pale. If the face is flushed and cyanotic, it indicates respiratory, not cardiac failure, and this position is not indicated. Hypodermic injection of such drugs as strychnine, atropine or digitalis, or in severe cases use ammonia. Friction, hot applications and the electric battery are useful adjuncts.

As the diaphragm is the most important muscle of respiration, stimulate by rhythmic traction made upon the tongue. In cases where the administration is followed by great nausea, may use small pieces of cracked ice, and small doses of brandy, or such drugs as nux vomica, aconite, or carbolic acid may prove useful. In severe cases, may resort to use of mustard plaster on abdomen.

In administering ether we may use a towel folded into a cone shape, or one of the numerous inhalers. Of these inhalers the "Allis" is one of the simplest and best. Commence the administration by pouring a few drops on the inhaler, and hold a short distance from the face until the drug is tolerated, when the inhaler may be placed upon the face. In giving this drug our object should be to saturate the inspired air with the vapor. We do not seek to totally exclude the air. The vapor being heavier than air, it is neither wise nor necessary to cover top of inhaler. As the patient becomes tolerant of the drug, we gradually increase the dose to the point of saturation of air. When fully under the anesthetic effect is to be kept up by the constant addition of a drop or so at a time. In this manner the average case can be anesthetized in from ten to fifteen minutes, the amount of ether required varying from four to five ounces. The most common sequels of ether inhalation are nausea and vomiting, headache, hiccough, and sometimes irritating cough. In females, nervous symptoms of an hysterical nature are frequently witnessed. Usually the nausea will pass away in an hour, and medication will not be necessary. When it is more persistent, chipped ice may relieve it. When retching is constant, a full tumbler of hot water or tea will often relieve it. One-drop doses of tincture nux vomica in a tablespoonful of warm water every ten minutes has been found most useful. However, the most efficacious treatment consists in the hypodermic injection of morphia. The headache generally requires a night's rest for its removal, but some relief may follow the use of aromatic spirits of ammonia, or one of the bromides. Morphia hypodermically will often relieve persistent hiccough. If cough persists, use counter irritation over the chest; may be combined with internal administration of some anodyne cough mixture. Hysterical symptoms are best met with the use of morphia or bromide of potassium.



## NITROUS OXID.

According to Dr. H. C. Wood, when pure nitrous oxid gas is inhaled for from half a minute to three minutes, insensibility is produced, preceded in many cases by decided evidences of excitement. Some persons under its influence will sink quietly away into unconsciousness, but others will become hilarious, erotic or pugnacious, and be restrained only by force. During the stage of anesthesia the patient presents the appearance of asphyxia. It is probable that the paralysis of function invades the different portions of the nervous system in the same order as that caused by ether, but we have no positive knowledge upon the subject. It is well established that this gas is not capable of yielding oxygen so as to support life. The gas when administered pure, enters the blood by diffusion through the thin walls of the air cells of the lungs. The respirations under the gas become slow and shallow, and, if pushed, a complete cessation of the respiratory movements eventually results. The heart beats quickly, fully and regularly under the gas, the pulsations are somewhat slowed in profound narcosis. There is, however, very slight danger of heart failure resulting from its inhalation. In animals killed by nitrous oxid, the heart continues beating even after respirations have ceased. It is, therefore, less important to watch the pulse than it is to watch the respiration. There is a suspension of muscular action, but no general muscular relaxation. The superficial reflexes are abolished. The average quantity of gas used is between five and ten gallons, and the average time taken to get anesthesia is about sixty-seven and a half seconds. In some cases micturation occurs, and generally in females. Erotic movements and sexual illusions are often seen in the same class. More or less headache follows the use of this anesthetic. It, however, soon passes away. There is apparently no danger in giving this gas to epileptics. In patients with valvular lesions the lividity persists for greater length of time, and in some of these cases syncope will follow. In administering the gas it is essential that we should have an inhaler which is air-tight. The inhaler must be of sufficient calibre to admit a full volume of gas, the valves must be free in action and tight when closed. Any admixture of air occurring through faulty appliances or application of inhaler will either very much delay or wholly prevent the desired result. The calibre of the tubing should be large enough to permit the passage of a volume of gas sufficient for full and easy inhalation on the part of the patient. The lividity of the countenance, and especially of the lips and eyelids, so noticeable in the early days of gas administration was undoubtedly due to the fact that the patient received the gas at each inhalation in such limited quantities that partial asphyxiation took place before the anesthetic stage was reached. Cyanosis is now, with our improved appliances, largely overcome. In administering nitrous oxid gas it should be borne in mind that

it is to be given pure, without any admixture of air. It must be remembered that it is never safe to give this or any other anesthetic substance except in the presence of an intelligent assistant. Any artificial teeth in mouth must be removed. If possible, have patient in recumbent position, preferably on a table. This is the safest posture for all cases of anesthesia. The neck, chest and abdomen must be perfectly free to give full play to the muscles concerned in respiration. It is of the utmost importance that absolute silence be observed. The patient is now to be reassured by a few cheering words, and directed to breathe freely. It is well to allow a nervous subject to take several breaths of air through the exhaling valve before turning on the gas. When confidence has been inspired, the inhaling valve should be opened gently and continuously, and the gas administered. After the first fifteen or twenty seconds, that is, after the lungs are presumably filled with the nitrous oxid gas, and when the gas is gaining tension in the blood, lividity of skin appears, and the ears and finger-tips darken, consciousness, however, being present for ten or fifteen seconds longer. In half a minute the patient's power of receiving impressions is markedly blunted, and in a few seconds additional consciousness is completely lost. At this stage loud noises, rough handling, etc., will restore consciousness. In from forty-five seconds to a minute the pupils will dilate, the eyes becoming dull and expressionless. The conjunctival reflex will still persist, and if the face-piece be removed, the return to consciousness will be rapid. There is usually time at this stage for the extraction of one tooth, or an abscess may be opened, etc. When the inhalation is not checked at this stage, further signs of deep anesthesia appear. In about a minute and a quarter the breathing grows stertorous, muscular movements of the hands and feet are seen, and the conjunctival reflex is lost. The eye-balls begin to oscillate, and if the gas be still inhaled the breathing becomes slow and intermittent. According to Clover, should it cease for more than fifteen seconds, air must be at once given. At this period of deep anesthesia there is great stress imposed upon the heart, so that the pulse should be watched, and if it flag the administration must at once be stopped. The patient is now ready for operation, and it is not wise to press nitrous oxid to a greater extent. According to Guilford complete anesthesia from this gas may be recognized by the following conditions. (1) If the lividity of the lips and eyelids is noticed, unconsciousness is near at hand, and to carry the administration much further would be hazardous. (2) When snoring (which should not be confounded with the stertor preceding death) becomes marked, it affords an infallible sign that the full anesthetic stage is reached.

There is but little after-effect from the gas, hysterical men and women may laugh, cry, etc. Epileptics occasionally have a fit during administration of the gas, or immediately afterward. Nausea will sometimes occur, often the result of swallowing



blood. Syncope rarely occurs, but often a slight headache persists for some little time after. The most common accident occurring during the administration of the gas is described as "swallowing the tongue," and if not remedied quickly death may result from asphyxiation. The tongue should, of course, be immediately drawn outward and upward to free the trachea. The chin should be pressed forward by using pressure behind the angles of the jaws until patient recovers. In cases of considerable heart disease the danger of fatal syncope must be guarded against, likewise the danger from asphyxia must not be overlooked in cases of grave pulmonary disease.

Heart disease is not a contraindication for giving this anesthetic, but greater care must be exercised. Age of itself offers no serious objection. In extensive pulmonary disease, especially phthisis, when hemorrhage is known to have occurred, the gas should be given most cautiously, as there is danger of starting fresh bleeding. In pregnancy care must be taken, particularly if subject is within a short period of her accouchement. Here the nervous system is easily thrown off its balance. Nitrous oxid is frequently combined with ether. The nitrous oxid being administered just long enough to secure anesthesia, and this state is maintained with ether. This combination will give very happy results in cases of women and children, but is not adapted for muscular or stout men.

Nitrous oxid is also frequently combined with oxygen. With this combination we get the full anesthetic effect of the nitrous oxid, but without the cyanotic symptoms that result from the use of the pure nitrous oxid. In this combination the best results are obtained by using a regulating appliance in the administration. The percentage of oxygen being progressively increased from two or three per cent. at start to seven, eight, or ten per cent., according to case. The longer the administration lasts, the more oxygen you can give.

#### ETHYL BROMIDE.

With ethyl bromide unconsciousness is obtained in about a minute or two. It is rapidly recovered from, and but little disagreeable after-effect results. The anesthetic state lasts about three minutes on an average. The usual dose required is about three drachms for women and children, and up to six for men. The drug is a colorless, neutral liquid, with an odor similar to chloroform, and of disagreeably sweetish taste. It affects the human system much as chloroform, producing profound anesthesia rapidly and pleasantly. It evaporates very quickly, and any sample which does not do this should be avoided. The drug is decomposed by sunlight and by exposure to the air, and should be kept in a dark-colored bottle. There is reason to believe that unfavorable symptoms follow the use of this agent only when it is impure or improperly given. Bromide of ethyl acts chiefly on

the respiratory and not on the circulatory system. It causes depressant effects on the respiration, but only after the use of excessive doses. The blood-pressure falls under the use to a slight degree, and the pulse is slowed. This anesthetic is very useful to the dentist, and he can obtain insensibility quickly and maintain same for several minutes. A few whiffs are often all that is required. Tetanic spasms rarely occur, but when they do they quickly pass off. Nausea and vomiting rarely follow its use, but it is apt to leave a garlic-like taste in the mouth for some little time after its administration. In administering this drug, it should be given but for a short time, but should be freely inhaled. It cannot be given carelessly with satisfactory results. From forty-five drops to three drachms usually suffices, and should be poured on the mask at once, instead of drop by drop, as in the case of chloroform. The cloth or inhaler should be held closely over the face, and should be kept in position until the full anesthetic effect results. The same precautions as observed in the giving of other general anesthetic substances should be also taken in administering ethyl bromide. It is not wise to administer this drug to those suffering from any grave lesion of heart, lungs, or kidneys.

#### NARCOTILE.

Narcotile is a colorless and very volatile liquid, with an odor somewhat similar to chloroform. Its effects are very similar to those from ethyl bromide. It is of an agreeable odor, and unconsciousness rapidly follows its inhalation. Very little disagreeable after-effect is experienced from its use. It sometimes causes nausea, and vomiting, and in some cases headache persists for some time after its inhalation. One objection to this drug is the fact that it is apt to give variable results. In the case of the neurotic and hysterical, and also in athletes, the anesthetic effect is not always satisfactory. In fact, in some of these subjects it seems quite impossible to obtain anesthesia. In administering this agent, it is necessary to use an inhaler which totally excludes air. That made by Ash & Sons seems to be quite satisfactory. Where this Ash inhaler is not to hand good results can often be obtained from the use of a glass or tin funnel, the large end of which is placed over the nose and mouth, and the neck of the funnel containing absorbent cotton. Through the small end of the funnel the narcotile is sprayed against the cotton. In anesthesia produced by this drug there are very slight changes to be observed in the pulse or respiration. From two to three drachms usually suffice to produce anesthesia, lasting from two to five minutes. Larger amounts inhaled will give more lasting effects. The pupillary reflex is not lost with this agent, excepting perhaps sometimes in children. It is not wise to push this drug to complete muscular relaxation, in fact, it but seldom results even from the inhalation of very considerable quantities. After the inhaler



is removed, the return to consciousness is rapid. One of the greatest objections to the use of narcotile is its cost. Owing to it being a comparatively new drug, we do not know just how safe it is.

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## DENTISTS IN THE ARMY

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BY IRA BOWER, D.D.S., OTTAWA.

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Read before the Canadian Dental Association, Montreal, Sept. 15th, 1902.

*Gentlemen,*—In consenting to write a paper for presentation to you on the subject of dentists in the army, I did it with a degree of confidence, knowing that the subject was of greater importance than might appear at a first glance. I only hope that I may do it justice enough to bring out the discussion that the subject demands from a humane point of view. What first caused me to think on the matter was perhaps from coming immediately in touch with some of the men who were going out to the late war, and again, examining some of those who were fortunate enough to return, and who expressed the pleasure that they had had their teeth put in condition, and had not done as some of their companions in arms, who, through negligence upon their own part, or oversight of the medical examiner, suffered untold tortures. No doubt many of you have noticed the sad condition of some of the men's teeth while they were on public parade, and have wondered how they would stand the change of climate, diet, and different conditions relative to army life.

I have made inquiry from many of the officers and men since their return, and they are all of the opinion that an army dental surgeon should be appointed, and the officers have expressed the pleasure that it would afford them to be numbered with a deputation that might wait upon the Minister of Militia on the matter.

Some may argue that it would be well if our profession were represented in the army during active service only, but listening to the views of the medical men who attended our annual camps, I must say I take a different view.

We know the army surgeon of to-day is appointed to save life and relieve suffering, and on the ground of relieving suffering and assisting the men to be in a fit condition to undergo the hardships of army life do I claim that a dentist should ever be with it.

I have consulted with some who have been out to the late war, and different dentists who have been called upon to tender to the needs of those who have gone forth to fight the battles of

our country and Empire, and after listening to them I do not wonder at the British Government refusing more men owing to defective teeth than from any other cause during their late war in South Africa. This is, in my belief, adequate reason why all armies should have regular qualified dental practitioners, for I am afraid, from what I have learned, that our medical friends were not as particular as they should have been in the dental branch of their examination, nor do I believe they are in a position to properly judge as to the condition of a man's mouth, surely not the same as the dentist, whose profession is as distinct as that of the oculist, and who is, or should be, able to not only treat the teeth of the men, but to perform any surgical operation about the mouth occasioned by wounds or accidents, and is the better judge as to the fitness of a man's teeth to stand the strain of campaign life than the ordinary army surgeon. I understand at the present time men with artificial dentures are rejected and that some at the head of the medical staff dispute the idea, claiming that a man with a good artificial denture is in fully as good condition as the man with ordinary good teeth; but this, I think, has to be yet determined.

I believe if you will but think what suffering our men must endure, especially when subject to the changes of climate, diet and the different exposures connected with army life, you will agree with me in saying that such a corps as I have mentioned should be in existence. I know it struck me so forcibly that at a meeting of the Eastern Dental Association, in 1901, I brought the matter before the notice of the members, and they passed resolutions which were sent to the different dental associations asking their co-operation, and also to the Minister of Militia, who referred the matter to the chief of the Medical Staff in the Dominion. The reply was not just what we wanted, so I communicated with him several times and had one personal interview on the matter. The latter was much more satisfactory in so much as he said he was in hearty sympathy with the movement, but at the present could not give the time to it the subject demanded, owing to the fact that they were making some important changes in the medical regulations, but that if we would draft some scheme or plan upon which we believed an army dental corps could be worked he would gladly give his assistance, as he believed such a branch would have to be formed some time in the future. This conversation was before the last meeting of the Eastern Ontario Dental Association. At that meeting I again brought up the matter and had a committee appointed to confer with our committee from each of the other associations to meet at this present meeting, but unfortunately the time was too short, and I have taken the present means to bring the subject up here. (For discussion see page 179.)



## NEW IDEAS IN PLATE-WORK.

BY G. F. BELDEN, D.D.S., TORONTO, ONT.

Read before the Toronto Dental Society, Nov. 11th, 1902.

When asked to read a paper before this august society, I felt somewhat unfitted for the task, but as I considered it a duty as well as a privilege, providing I had anything worth saying, I decided to do the best I could.

I have a few ideas in plate-work which will perhaps be new to some and to others will be quite familiar; however, if I only succeed in enlightening one or two on a few points, and by some of the statements I make cause a good, warm, healthy discussion, I will consider myself well repaid for the time I have spent in the preparation of this paper.

I see by the programme, my paper is designated "New Ideas in Plate-Work." Perhaps it would have been better to have called it "a few ideas in plate-work." However, we shall let it remain as it is.

In the outset, I make this strong statement that there are more failures, and a great deal more slovenly work done in plate-work than any other branch of dentistry. I think, perhaps, you will bear me out in this, and if not, I am sure many of our long-suffering patients will who have been wearing ill-fitting and unsightly-looking plates.

In the course of twelve years I have had a varied, and I might say, a wide country practice, a great part of which was plate-work, so that I had a chance to study not only my own work but that of a great many other men, some of them men with the best reputations in the province to-day. Still I saw the same careless work; no attempt, apparently, to get a good impression of the mouth, a much less attempt at articulation, and not the slightest attempt whatever to reproduce the natural expression of the features and mouth by a careful selection of the teeth as to shade, shape, and size, etc., but instead, to use a common expression, use any old thing and in any old way to get through with the work and get the price.

You will see a great big sallow-complexioned patient wearing a set of teeth about the size of a child's teeth at five, or a very small patient—by the way she must be patient to endure it—wearing a set of teeth so large that they can be seen at least a mile away.

Now this state of things should not exist to such an extent as it does, but it will until the profession wakes up to the idea that it requires as much skill if not more, to make a good fitting denture than it does to make a good-fitting piece of bridge-work. With the latter you have the abutments to attach to, and if the bridge is made reasonably well and cemented into position, the patient

can use it. Not so with a plate, where it depends on air suction to hold it into position, as the impression requires to be exact, and every detail of the plate correct, else it drops.

Why does this state of things exist? Because, unfortunately, the majority of our dentists are "expert operators," or at least they imagine they are, so devote the greater part of their time and attention to that work, to the detriment of plate-work, passing it on after the impression and articulation is taken in a hurried and slipshod way to the mechanical man, or what is worse, to the student, to complete the plate ready for the mouth.

I would ask, how is it possible for these men who have never seen the patient, to make up a set of teeth that would in any way reproduce the natural expression? They only go along certain specified lines laid down for them, having no thought or conception of the original articulation.

I would ask if it is fair to the patient to treat them in such a charlatan way? We are certainly not giving them value for their money. I am afraid we have all erred in this way, and the people will not have the respect for dentistry they should until the dentists themselves wake and do more conscientious work.

What is the reason then, so little time is devoted to this work? Is it because it is not remunerative enough? If so, then I would say by all means charge more, put more time on your work, and the patients will soon learn to appreciate it, so much that they will readily pay the increased price.

In the short space of time I have at my disposal, it will be impossible to take up all I would like to treat; perhaps, if I do not weary you with this paper, I shall at some future time take up something else.

I do not depend on any appliance to hold a plate in position, but depend on a perfect impression and articulation, together with a careful handling of every detail of the work, until the plate is ready for the mouth. The latter means carefulness in mixing the plaster, flasking, packing, separating and finishing, as every person knows and has found out by experience that a plate, however well commenced, can be spoiled at either of these stages.

#### HOW TO TAKE AN UPPER IMPRESSION.

*Selection of Tray.*—Select a tray which approximately fits the jaw; heat a piece of compound and place in tray, and take impression, run a model in plaster, separate and then select another that fits the model snugly, being careful that it fits well back over the tuberosities of the jaw; take cutting shears and lower the edges of the tray so they will only come up half way on the sides of the jaws, then press the sides in all around, so it fits the model closely; also see that the cup fits well up into the palate. When you have done this you have a cup that will not press the muscles out of shape. Then heat a little more compound, place on back part of the cup, insert in the mouth, hold in position with the left



hand and with the forefinger of the right hand reach in and press up the compound gently against the palate from side to side, bringing a little forward on the under side of the tray ; when hard remove, chill and dry. You will now require comparatively little plaster. Mix plaster a little thinner than ordinarily, but beat it thoroughly, place in cup, insert quickly, and hold gently but firmly in place, and instruct patient to pull down the lips and cheeks; when hard, remove and you will find you have a perfect impression of the jaw, together with the markings of all the muscles of the cheeks.

*Lower Impression.*—Choose a cup (S.S.W.) which approximately fits the jaw, taking cutting shears and pare off sides of cups so they will be free of the muscles of the tongue and cheeks, if the jaw is very flat, and cut until the cup just covers the top of the jaw. Then bend it and shape it to suit every raise or depression of the jaw, when the cup is ready, mix very thin plaster with about twice the amount of potassium sulphate most people use, and beat very thoroughly. Have the patient stand up, place plaster in cup, insert in the mouth, hold steadily in the jaw, and instruct patient to open and close the mouth, also to raise the tongue and lay it forward in the cup, and let it rest there. When plaster is hard, remove, and you will find the marking of every muscle in the plaster that will be in any way likely to affect the finished plate. In finishing the lower edges of a lower plate I merely smooth them off, and do not file them out of shape as so many do, but leave all the markings in the plate, so the muscles can play in beneath the plate without moving it. Also with the upper edge of the rim or gum of the upper plate, I smooth and polish, leaving all the markings on it, so the muscles will fit snugly down and around the top of the plate, thereby excluding the air on all sides. I also leave the plate very much longer than most men, allowing plate to run back even onto the soft palate, without in any way affecting the patient, but instead, having a tendency to make the plate fit firmer and next to impossible for any food to get above it.

#### ARTICULATION FOR FULL UPPER PLATE.

Make a compound trial plate to fit the model very perfectly. Then soften more compound and make into a roll about the size of an ordinary lead pencil, lay around the alveolar ridge, stick there firmly with heated spatula, now trim off the front and shape up to about shape of the teeth when set up, also cut off under surface till it is about the length of the teeth required, and place in mouth; if teeth strike unevenly, pare off until all the teeth strike evenly, when the jaw is closed. Now remove and pass spirit flame over under surface of the ridge and insert into mouth quickly again, this time, instruct patient to close, by so doing the mark of the cusps will be made in the compound; remove, chill, and then place back in the mouth, and let the patient use it as if it

were a finished plate. Allow the patient to wear it awhile and commence or attend to some other work, at the same time noting expression, closure of jaw, etc. You will thereby have plenty of time to find out whether bite is correct or not. If correct you will find the first marks increased when plate is removed. In taking a bite in this way, the wax being firm with exception of surface, the jaw has not that tendency to slip forward or slide sidewise, as it does when biting into soft wax.

To get the shape of the occluding teeth, I take impression in wax, get model and then set the teeth into the proper markings of the bite, and place in articulator, lock and go on and set up the teeth.

Just one other thing this evening, and that is taking an impression where the alveolar ridge is soft in places. Select cup as before, take full impression in compound, using the same care in pressing up at the back of the cup; when hard remove, chill and dry; opposite soft part or parts cut wax completely out, then mix some plaster as before directed, placing in enough to fill up portion cut away, and a little spread thinly over the rest of the impression. Insert quickly in the mouth, press firmly to place and opposite soft parts press gently with the finger, also having patient pull down cheeks and lips as before directed—by doing this the impression can be pushed firmly into position without shoving or displacing the soft parts, as the pressure comes on the hard parts of the mouth.

If properly manipulated, you will find when you remove it you have a beautiful impression of the jaw with very little trouble, that would otherwise be a very difficult task in the old way.

Gentlemen, I thank you in closing for your kind attention, and hope I have not wearied you, and also hope you will overlook any little discrepancies in the composition, as I have a peculiar way of leaving everything like this to the eleventh hour and then hurrying over it.

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## TREATMENT OF ALVEOLAR ABSCESSSES.

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BY G. A. FRASER.

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Read before the Royal Dental Society, February 3rd, 1903.

We hear a great deal about anti-treating societies nowadays, but I am afraid there is no such institution for the poor dentist. He will have to go on treating to the end of the chapter—treating abscesses, I mean, of course.

This question of alveolar abscesses is one of the most perplexing problems of the dentist, causing no end of trouble. A few years ago all abscessed teeth were treated with cold steel in



the shape of a pair of forceps. But the world moves, and so does dental science; and now the conscientious dentist saves such teeth to give years of good service to their happy owners. In most cases alveolar abscesses are the result of the death and putrescence of the pulp. Often, for a considerable time, the septic micro-organisms of the putrescent pulp, at the apex of the tooth, are held at bay by the white corpuscles. But sooner or later these scavengers of the body are apt to be overcome in their forlorn struggle, and the bacteria become master of the situation. It may be a severe cold, or over-work, or over-exertion—a scrap, for instance; at any rate, the strength of the body is greatly lowered; and the leucocytes, losing their power of resistance, the micro-organisms multiply with great rapidity. An alveolar abscess is the result. This works in the direction of least resistance, finding its way to the inside of the mouth, on one side or other of the dental arch, or occasionally on the face or neck.

Such is an acute abscess. Should germs be allowed to remain at the apex, we will have a chronic abscess, liable, at any time, to develop into an acute abscess.

*Treatment of Acute Abscesses.*—Should the dentist be consulted in the early stages of the trouble before the abscess is under way, he may be able to avert it. If the inflammation be the result of a putrescent pulp, it is necessary to open into the tooth. A good strong thread may be tied around the tooth, and the pressure of the drill may be counteracted by pulling on the thread. Then the contents of the canal or canals must be removed. In the case of a molar, you have your work cut out for you. The canals may require enlarging, which may be done with Beutel-rock's instruments or Kerr's broaches. Personally, I have no use for Gates-Glidden drills. Having gently removed the putrescent contents, a soothing antiseptic or germicide may be pumped up into the canal. Campho-phenique is good; so is oil of cloves. Every dentist has his favorite remedy. A counter-irritant, such as iodine and aconite should be applied to the gum. In many cases this will be sufficient to give relief.

I suppose, in the majority of cases, the patient never seeks the dentist until the abscess is pretty well developed. The pain is almost unbearable. Besides local disturbances, we often have constitutional symptoms, showing absorption of poisons from the pus, such as fever, chill, etc. I read that heat is not of much use during the pointing process, although it may be useful in the early stages. The tooth should be opened up, as in the other case, if the patient can endure the process, and often several free incisions may be made in the gum to relieve the engorged vessels.

In case of severe disturbances, it is well to give ten grains of Dover's powder at night, followed by a saline cathartic in the morning. This greatly relieves the blood-pressure; hot foot baths also act similarly by drawing the blood to the extremities. If the pain be particularly severe, it may be necessary to administer morphine or the bromides.

In the majority of cases the pus is allowed to work its way out to the surface, forming a fistula; but often it is advisable to anticipate matters by making an artificial fistula. An incision must be made through the soft tissues over the apex of the root. Then a pellet of cotton containing a 10 per cent. solution of cocaine is laid on the periosteum—or better, the patient may be put under the influence of nitrous oxide gas. The alveolar process must now be penetrated by using a clean new bur or a trephine. If properly done, this allows the pus to be freely evacuated. Then the canal being open, the whole abscessed tract may be repeatedly washed out with hydrogen peroxide, followed by some germicide, such as campho-phenique, oil of cloves or Black's 1-2-3. There should be a prompt subsidence of the trouble.

I must confess that my experience in making artificial fistulas has not been the most successful. I purchased a trephin, and thought all my troubles were over; but I found out they were just commencing. In fact, after one or two failures, I lost faith in the method, and went back to the old way of applying remedies through the canal. Still I understand it can be done, and has been done, so I may as well cheer up again.

Sometimes we have an acute abscess in a tooth, when no fistula results. I have in mind such a one, at the apex of an upper lateral. It had been treated formerly by another professional man, and pronounced all right, and a filling inserted. An abscess developed again, and my valuable (?) advice was sought. I promptly opened up the canal, and attempted to force campho-phenique through the apex. It resulted in the patient taking to his bed, the pain being threefold greater than before. That made me a humbler but wiser man. I believe the proper way would have been to get rid of more or less of the pus in the abscessed cavity, and then gently introduce my germicide, when the inflammation would have gradually subsided. At any rate, I have had success in more than one similar case since. I have learned never to force anything, not even campho-phenique, into a cavity full of pus, if I would avoid much trouble and loss of prestige.

*Treatment of Chronic Abscesses.*—We have two general classes of chronic abscesses: (1) Those with a fistula; (2) those with no opening or only an opening through the tooth into the mouth. The treatment of those with fistulas is similar to the treatment previously mentioned. The tooth must be opened up, and the canals cleaned out, so as to allow free entrance to the abscess through the apex of the root. Before forcing peroxide through the tract, it is well to force water through to be sure that the way is clear. Then the peroxide may be repeatedly forced through until the pus is practically all destroyed. A good germicide may now be forced after, and the whole sealed up. One or two such treatments are sufficient in many cases. Should the abscess be an old offender, the end of the root is often



rough, and if left would be sure to irritate the tissues, the result being a recurrence of the abscess. Authorities advise cutting off the end of the root with a sharp fissure bur. I have never done it, nor seen it done, so I give this to you second-hand. If there be no fistula, it is not advisable to make one. The canal is to be cleaned out as in former cases. If it be an anterior tooth, one may pump peroxide up, or down, with a broach, which should be continued until there be no signs of pus, indicated by cessation of foaming of the peroxide. Then a good germicide should be worked up with a broach, and the whole sealed up more or less tightly until a subsequent sitting.

For a bicuspid or molar, the latter especially, the process is more difficult. The best method I have ever tried is as follows: Let us take, for instance, a lower molar. After removing the putrescent contents of the canals and enlarging them as far towards the apex as possible, I pumped through the apex of each root a mixture of iodine and creosote, equal parts. This should be worked through until the patient is conscious of a burning sensation at the apex. The mixture, being a strong germicide, gives a good account of itself, and in many instances one application is quite sufficient. No doubt a great deal depends on the curvature of the roots and the size of the canals, as the more easily it is applied the greater likelihood of success.

However, many may prefer the use of peroxide, followed by whatever germicide is their stand-by. Very many cases have been permanently cured by such means. It is not my intention, though, to enumerate many methods, for it would only "ball you up," as the boys say. I believe it is expected that there will be a discussion following this paper, and it is to be hoped that various members of the class will give a little of their experience, which will add materially to the sum total of our knowledge in this line.

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## PYORRHEA ALVEOLARIS.

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BY J. P. McLACHLAN, D.D.S., TORONTO, ONT.

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Read before the Royal Dental Society, Toronto.

*Mr. President, Ladies and Gentlemen,*—I have been asked to read you a paper on pyorrhea alveolaris. It is a subject which, as you are all aware, has for years caused much investigation and discussion in both medical and dental literature. Many men have written on it, and not infrequently each has found a new name by which to designate it, which suited him better than any used previously. Likewise the etiology has not been clear to all alike, so that the old adage, "Many men of many minds," seems applicable to the various writers on pyorrhea.

On looking over some of the literature on the pathological condition now generally known as pyorrhea alveolaris, I find that it dates back many hundreds of years; in fact, before the birth of Christ, allusion is made to a condition which may have been what we call pyorrhea alveolaris. The name pyorrhea alveolaris seems to have been first used by French pathologists. The first writer in America to use it was Dr. Rehwinkel, in 1877. It is usually found in persons over thirty years, but is occasionally seen in young people. It is well known to be peculiarly a disease of civilization; its ravages are as great among the rich as among the poor. Man is not alone subject to it, but animals as well; not only domesticated but wild animals kept long in captivity, especially if fed on farinaceous foods, may show signs of its presence.

Dr. Kirk defines this condition as a necrotic, suppurative, inflammatory process, which destroys the pericementum; and by setting up an osteomyelitis in the alveolar margins, subsequently destroys them also.

Burchard said the name pyorrhea alveolaris implies but one symptom, common to several distinct varieties of disease of the pericementum; but it is generally understood as a term descriptive of a series of degenerative conditions. These are a progressive loosening of the teeth, attended by a loss of the retentive structures; the loosening of the teeth being, in the majority of cases, attended by a flow of pus from the affected alveolus, and by deposits of calculi upon the denuded roots.

Probably the first writer who mentions a condition somewhat similar to pyorrhea was the great physician Hippocrates, who lived about 350 B.C. In his writings on the human teeth, he recommends that all loose teeth be removed. Unfortunately he does not give sufficient data to enable us to determine whether pyorrhea existed then or not.

Dr. Sibly, Rochester, says he saw the jaws of a mummy which bore unmistakable evidences of pyorrhea alveolaris.

Within the last two centuries much has been written on the subject. The French pathologists appear to be the first of the more recent writers. In 1746 Fauchard described this disease, but considered it incurable, and advised early extraction. In 1757 Bourdet made the first attempt to save teeth thus affected. In 1770 Bredmore, a dentist of London, seems to have had remarkable success in treating it. He considered the disease was caused by constitutional disturbances. His treatment was partly medical, partly surgical. After thorough removal of all deposits, he cuts and scarifies the gums to induce new granulations. Used astringent antiseptic mouth-washes. Very loose teeth he recommends having extracted.

Robert Wooffendale, speaking of the cases he had seen cured by Bredmore, says, "Such cases I have frequently seen, but never cured one, nor saw one of the same kind, or anything like it, cured by any other person."



About 1850, Dr. J. M. Riggs, Hartford, was making a special study of this disease, and for twenty-five years had very marked success in its treatment; hence the name by which it was most commonly known for many years was Riggs' disease. His treatment was surgical. He devised special instruments for the removal of all concretions from the roots, cut away the diseased edges of the alveolus, and as an astringent and stimulant wash he used myrrh.

In 1867 Magitot published a most complete paper on the subject. He considered the causes both constitutional and local. He claimed the gum was not the real seat of the trouble, and was attacked subsequently. His method of treatment was, after thorough removal of tartar, to cauterize pockets with pure chromic acid. He also recommended scarification of the gums. For constitutional irregularities he advised potassium chlorate tablets in aqua or purgative mineral waters.

Dr. Black has written extensively on this subject in the "American System of Dentistry," as well as in the various dental journals, and gave it the name of phagedenic pericementitis. He believes the point of initial lesion is in the pericementum, and considers this condition to be a molecular necrosis of the alveolar process and pericementum, accompanied in the latter stages by pyogenic infection and deposits of calculi. In his recent writings Black has demonstrated the presence of glands in the pericementum, which he believes are the initial seat of the trouble. He thinks a specific germ may yet be isolated which has a peculiar or special tendency for these glands, as the typhoid bacillus has for Peyer's patches in intestine.

In 1893 Dr. C. N. Pierce, after making extensive investigations, both microscopical and chemical, on this subject, made the statement that he found uric acid and its salts at the apical ends of roots of teeth in typical cases of pyorrhea alveolaris. This confirmed his theory regarding gouty diathesis as the true cause. His treatment was chiefly systemic. He recommended his patients to live mainly on albuminous diet, and drink large quantities of water, especially Hunyadi or lithia.

Dr. Talbot has written a lengthy volume on pyorrhea alveolaris, but he disagrees with Dr. Pierce as to the cause. He contends that uric acid can only be found in very few cases, that the cause is due to irritation from constitutional and local causes. The constitutional causes are: Mercurial salivation, potassium iodide, and other drugs; loss of vitality, locomotor ataxia, etc. "In any and all of those diseases in which systemic disturbances produce trophic changes, this disease is present." He recommends nourishing food, fresh air, out-door exercise, vigorous use of tooth-brush, and antiseptic astringent mouth washes.

Burchard classifies this disorder under three headings: (1) Marginal gingivitis, associated with and arising from primary gingivitis; (2) phagedenic pericementitis, constitutional and

local causes; (3) gouty pericementitis, constitutional and local causes. In the first variety several teeth are affected; in the second and third, usually but one. In the first, prognosis is favorable; in the second, prognosis is generally unfavorable; in the third, prognosis is always favorable.

Treatment: First remove all deposits, cleanse pockets with 25 per cent.  $\text{H}_2\text{O}_2$ ; give astringent mouth-wash.

R    Zinc chloride ..... grs. x.  
       Aq. menth. pip .....  $\frac{3}{4}$  j.  
                     Two or three times daily.

If teeth be loose, hold them firmly in place, either with bands soldered together or swaged metal caps, cemented to place.

Dr. Harlan believes it is local in origin. He says that the beginning of the loosening of the teeth, aside from any hereditary tendency, is a purely local matter, and while other diseases may be coincident and concomitant with the loosening of the teeth, they are only passive factors, not active agents, in the destruction of the pericementum and bony socket. In treatment, he pays special attention to holding the teeth in position, uses silk ligatures or silver wire, covers the ligatures with Kawarska paste (a solution of celluloid in acetone). Sometimes he cuts a trench in occlusal surfaces, puts in a wire, and fills about this. In sensitive teeth he uses largin (a silver salt); in the pockets eucaine hydrochloric B., 1 per cent. solution; as an escharotic and stimulant, trichloroacetic, or chromic acid, while in sluggish pockets, 3-20 per cent. solution  $\text{AgNO}_3$ . In scaling uses very delicate instruments, and prescribes an antiseptic and astringent mouth-wash:

R    Resorcin ..... grs. v.  
       Boro-glycerid ..... grs. v.  
       O. Gaultheria to flavor.  
       Hot water to make..... 60-80 ℥.

Dr. Rhein considers this trouble a local manifestation of a general systemic disturbance. For sealing the pockets, he uses sterosole (a form of collodion). If one tooth was beginning to extrude from its socket, while the rest of the teeth were in good condition, he would devitalize the affected tooth immediately; also where one root is almost wholly denuded, he amputates this and replaces it with a porcelain root. In the main his treatment is the same as Dr. Harlan's or Dr. Burchard's.

Dr. Barrett says: "After caries, pyorrhea alveolaris is responsible for the loss of more teeth than any other disease." He classifies it the same as Burchard. His prognosis and treatment is almost the same as Burchard's.

Dr. Younger, New York, and Dr. Cook, Chicago, made a number of experiments to determine, if possible, the specific germ which was accountable for pyorrhea alveolaris. They took the greatest care and used the latest scientific methods. Cul-



tures were made from pus deep in pyorrhea pockets: also from tartar situated well toward the apex of the roots. Nothing of importance was found in the tartar, but from pus seven out of eight colonies in Petri plates showed a distinct bacillus. It was found to be facultative aerobic, *i.e.*, grows either in oxygen or without it. General characteristics: In gelatine, very short, round; at body temperature, slightly motile; at room temperature, very little motion. In blood serum it grows much stronger.

Experiments on rabbits all showed marked pathological conditions. Abscesses developed in which were found the original bacillus. This bacillus is not found along the alveolar ridge, nor in tartar at gingival margins, only in deep-seated pockets.

Dr. Younger found that the pus found in pyorrhea pockets is peculiar and characteristic. It doesn't contain the virulent streptococci and staphylococci or leptothrix so commonly found in ordinary ulcerations of the mouth. Where the streptococci is found, it is of the brevis and non-pathogenic variety, and the pus contains lime salts, epithelium cells, serum and xanthin bases, produced by the action of bacteria on proteid bases.

Dr. Stewart, Miss., bases his treatment on the microscopic experiments of Dr. G. B. Clement, which showed that the cementum of the teeth affected with pyorrhea was denser than those not so afflicted.

Dr. Stewart uses cocaine, 3 per cent., in pockets, and his method differs essentially from all others in the heroic methods he adopts in scaling. He first cuts the pericementum free from the tooth at neck. Then with very sharp chisels scrapes and cuts the cementum until he not only removes all calculi, but considerable of the cementum as well. Then cuts three or four grooves in cementum. He lacerates the pericementum and gums freely; washes the pockets several times with  $H_2SO_4$ , or  $HCl$ , to partly decalcify the cementum. As a mouth-wash, uses  $KMnO_4$ , 1 gr. to 1 oz. of water or listerine. Don't use a toothbrush for few days. See the patient in a month.

Prof. W. D. Miller, Berlin, says there are five active factors in the production of this trouble: (1) Constitutional diathesis; (2) local causes; (3) micro-organisms.

Dr. Kirk believes it is due to systemic disorders, with the bacterial element as a possible exciting factor. He considers the predisposing causes of erosion and pyorrhea very much the same. These, he claims, are brought about by imperfect metabolism, either through imperfect elimination, or a constant over-production of the waste products of nitrogenous substances. He advises constitutional as well as local treatment.

Dr. James Truman says it is a local manifestation, but general systemic conditions aggravate it, *e.g.*, gout, rheumatism, uric acid, etc.

Treatment: Thorough removal of tartar, cleanse pockets with  $H_2O_2$ , then cauterize dead tissue and dissolve any remain-

ing tartar with  $\text{H}_2\text{SO}_4$ , 20-50 per cent., neutralize, wash pockets with warm water, and pack with sulphate quinine.

The quinine closes pockets and prevents infection, is anti-septic, and prevents inflammation; also prevents transmigration of leucocytes. Gives as a mouth wash:

Hydronaphthol .....	grs. xv.
Alcohol .....	
Aqua .....	aa $\frac{3}{4}$ j.

Twenty to thirty gts. in tumbler of water.

Our worthy Dean, Dr. Willmott, says the cause is probably local, and may or may not be associated with gouty diathesis. It is not incurable, but prognosis is very unfavorable. After removal of tartar, and using  $\text{H}_2\text{SO}_4$  in pockets, the Dean recommends Black's 1-2-3 for dressing; leave for a week and observe conditions. If teeth are somewhat loose would ligate or use metal caps; if very loose, extract.

These, ladies and gentlemen, are, very briefly, some of the views and methods of treating this disease adopted by some of the leading men in the profession.

You see they differ considerably as to the etiology, but in the treatment there is not much variation. Nearly all agree on: (1) Complete removal of all deposits from roots; (2) thorough cleansing of the pockets; (3) use of an astringent, stimulant, and escharotic to burn out diseased and broken-down tissue in pockets, and to induce healthy granulation; (4) use of an anti-septic mouth-wash; (5) if teeth be loose, use some means of holding them firm.

I am indebted to the writings of Dr. William Truman and Dr. McCall, as well as to the men whose names I have before mentioned, for material on this subject.

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## DON'TS RE TREATMENT OF PATIENTS.

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BY W. CECIL TROTTER, B.A., D.D.S., TORONTO.

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Read before the Toronto Dental Society.

Don't criticise another operator's work in the mouth of your patient.

Don't use soiled towels on your patients.

Don't remove the waste cotton from your tweezers by wiping them on your coat or trousers.

Don't smoke or eat onions before attending to patients.

Don't allow your patient to dictate to you too much as to how their work is to be done.



## Clinics at the Canadian Dental Association, Montreal, Sept. 15, 16, 17, 1902.

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### PORCELAIN CROWN AND BRIDGE-WORK.

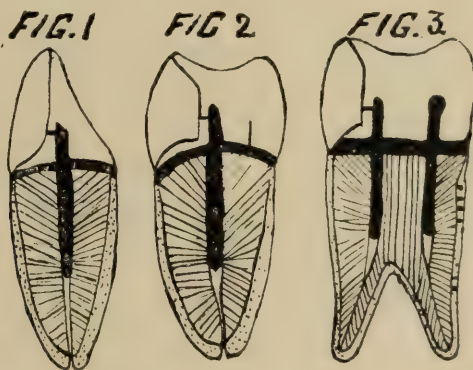
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BY E. C. ABBOTT, D.D.S., TORONTO.

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*Crowns.*—Porcelain crowns are especially applicable to the ten anterior teeth, also in those cases where gum reproduction is necessary.

*Contra-Indication.*—Where the "bite" is so close that sufficient bulk of porcelain could not be used, in order to secure strength.



*Root Preparation.*—Much of the success of this work depends on the root preparation. It is much the same as for any style of dowel crown, with the exception that the root must be cut shorter in order to give space for a sufficient bulk of porcelain.

*Bands.*—These are constructed as usual of platinum, twenty-eight gauge. Where pure gold is used for soldering, all joints must be made to "lap"; where platinum solder is used they may be "buted."

*Platino-Iridium.*—About thirty-two gauge should be used for construction of the floor of cap.

*Posts.*—These should be constructed of platino-iridium, proportionate in size with the root; should extend into the root-canal a distance equal to the length of the crown of the tooth; should fit the walls as closely as possible, and should be kept as near as possible to the lingual when passing through the floor of the cap; in this way the surplus does not interfere with the adjustment of the facing to the cap on the buccal side. The square posting is found to be more rigid than the round.

If a band be used, the neck of the facing should be ground

thin, and should overlap the cap in order that the joint between cap and facing may be hidden.

The facing having been ground and adapted to the cap, the work is invested, and the pins of the facing having been bent so as to come in direct contact with the projecting post, are soldered to this post either with pure gold or platinum solder. This joint, between pins and posts, should be made to come as near as possible to the floor of the cap, so that there may be ample room for body. In a bicuspid it is well to have a platinum support for the lingual cusp. This may be obtained if there are two posts, by extending the lingual post through the floor; as in Fig. 3 in this case, it is well to round off the end. Dr. H. J. Goslee sometimes uses a semi-circular piece of platinum plate, soldered to the floor of the cap, in this way supporting the lingual cusp. Having soldered the pins of the facing to the post, the crown may now be placed in position in the mouth, and any little defect in alignment, relation, etc., may be remedied. Any sharp angle on the post, pins, etc., should be rounded off by means of a disc (porcelain body adheres more readily to a rounded surface). The crown should be thoroughly cleaned, and it is ready for the porcelain body. Before building this on, it is well to pulverize it in a mortar, thus making it carve better and take a better finish. When the high-fusing bodies are ground in this way, it reduces the fusing point, hence it is always well to thoroughly pulverize the body to be used in the final baking.

*Anterior Porcelain Bridge Supplying Two Centrals and Right Lateral Abutments, Two Central Roots.*—The abutments are prepared in usual way for porcelain crowns; platino-iridium posts, and platinum hoods, placed in position on the roots, a bite in wax is taken, afterwards a plaster impression, drawing away with it the posts, etc.; a model made, using quartz and plaster. This is mounted on an articulator in proper relation to the opposing teeth. The facings, having been selected, are now ground and adapted to their places, are "waxed" in position, and invested. The wax having been thoroughly boiled out, we now have exposed the lingual aspect of the bridge. A "trestle-work" of platino-iridium is fitted, so as to form a strong support, and this is soldered to posts and pins of facings, the whole forming a continuous metal frame-work. The bridge is fitted in the mouth after this stage has been completed. The porcelain body is next built on, taking the usual precautions regarding cleanliness, etc. It should have a putty-like consistency, and the moisture should be absorbed by means of bibulous paper or clean linen as it is brought to the surface by tapping. The bridge is now given its first baking. Very often two bakings will be found sufficient, but some cases require more.

Among the chief points which contribute to the success of porcelain crown and bridge-work, we must observe the follow-



ing: Thorough cleanliness throughout the work. If pure gold is used in soldering the metal framework, it should be thoroughly incorporated with the platinum. This is obtained by a continuous high heat from the blow-pipe. The minimum amount of gold should be used in soldering. Sufficient bulk of porcelain body should be secured to prevent fracture.

Round off the angles of the metal framework before applying the body. In baking keep the work out of all draughts. Heat the work up gradually, and also let it cool gradually.

## DR. SHARP'S METHOD OF MAKING SEAMLESS CONTOURED GOLD CROWNS.

BY DR. C. W. H. RONDEAU, MONTREAL.

A clinic given by Dr. Rondeau on this method was viewed with a great deal of interest, and, after seeing the process, one was impressed with the fact that the old soldered crown should be a thing of the past, especially for the dentist who is practising



FIG. 1.

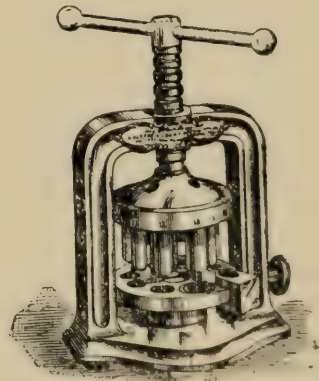


FIG. 2.

outside the large cities. In fact, there are many things to be said in favor of the seamless crown. In the first place, in the matter of time and patience, sitting down and getting small pieces of solder together, being careful not to burn them; then the risk of unsoldering when heated up for a bridge, and the difference between the color of the plate and solder, and the fear of discoloring in the mouth. These, and many other disadvantages of the soldered crown might be named.

Place against this picture, the seamless crown, of one uniform color, beautifully contoured, true to nature, no trouble with soldering, and no fear of the joints opening when heated for use for an abutment for a bridge. The seamless crown is purely

a mechanical operation, and not jewellery. The difficulty heretofore experienced in swaging crowns from the inside was the fact that the crown was the thickness of gold smaller than the original tooth to be crowned, and when the method of swaging from the outside was employed, there was the difficulty of neatly drawing it in at the neck, to obtain any semblance of contour. It is an exceedingly difficult process to contract the gold without crimping it or buckling, while it is a very simple matter to expand it.

Dr. Sharp's method has entirely overcome the difficulties above mentioned. After taking the wire measurements, the proper tooth form is selected by comparing these measurements with the chart that is furnished with the system. These tooth forms are of soft rubber, and are shown in Fig. 1. They are the thickness of 30-gauge gold larger in circumference than the tooth to be crowned, consequently the cap will fit the original tooth when finished. One man asked the question, "Why not strike the crown up from the outside?" As stated in the foregoing, this method necessitates contracting the gold, and, as I have already stated, my experience has taught me that I can expand gold by pleating it better than I can contract it.

Perfect articulation can be obtained either by putting the cap on the tooth and having the patient bite it, thus denting the thin metal, or by grinding the natural tooth off even on the top, or by using a special pair of pliers for denting the gold, and thus forming cusps that will correspond with the occluding tooth. In ordinary cases, from the time you take the size of the tooth to be crowned until the crown is finished, ready to put in the mouth, will consume about six minutes. The draw-press for forming the seamless shells or cartridges is exceedingly complete and compact in construction. It is illustrated in Fig. 2. All the punches are firmly fixed in the head, consequently there are no pieces to be lost. It is entirely accurate, and works very easily and quickly, and there is absolutely no noise.

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## FILLING TEETH WITH TIN AND GOLD.

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BY W. C. GOWAN, D.D.S., CREEMORE, ONT.

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*Suitable Cavities.*—(1) Proximo-occlusal cavities in all lower bicuspid and molars; (2) disto-occlusal cavities in all upper bicuspid not exposed to view; (3) proximo-occlusal cavities in upper first and second molars; (4) deep occlusal cavities in molars where walls are strong enough; (5) especially suitable in cavities closely approaching pulp.

The preparation of cavities is same as for gold.



*Preparation of Material.*—Lay sheet of gold on sheet of tin and cut into three equal strips. With piece of wire roll strip lengthwise, with gold inside, and twist into ropes with clean fingers. Use matrix on all proximo-occlusal cavities.

*Insertion.*—Place one end of rope in cavity, holding the other with fingers or pliers. With deeply serrated plugger of as large size as will go freely into cavity, using hand-pressure only, press into all parts of cavity without dividing rope until only room enough is left for pure gold.

*Precautions.*—(1) Don't overwork the material; (2) don't attempt the use of automatic mallet; (3) make few applications of plugger, and make them firmly. Further, when enough tin is in, break off the rope, and do not press the surface flat, but apply large pellet of annealed gold, forcing same into tin mass, and repeat once or twice with hand-pressure; then continue pellets to cover surface, and with a small condensing plugger, mallet same home firmly; next see that lateral margins against matrix are full; use small unannealed pellets on thin, flat-point plugger, hand-pressure. Then proceed as in pure gold filling, until cavity is full. Remove matrix and use flat burnisher, firmly drawing point of same from centre of filling over lateral margins; finish same as gold, but remember tin part is more quickly cut away with disc.

Advantages of tin and gold over gold alone are: Ease and certainty of adaptation; economy in time of patient and operator; ease of perfect finishing; comfort of patient during operation; non-conducting qualities; good clinical record—better than gold.

Disadvantages.—Color, tin part of filling turns black; dentist not acquainted with it may diagnose blackness as recurrence of decay or leakage at cervix of gold filling, and remove, therefore warn patient in advance.

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## A FEW SIMPLE BLOWPIPE TESTS OF INTEREST TO DENTISTS.

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BY W. CECIL TROTTER, B.A., D.D.S.

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Satisfactory qualitative tests of alloys or cements can frequently be rapidly made with a dental blow-pipe, some charcoal or plaster-of-Paris and a few reagents such as sodium carbonate, borax, cobalt, nitrate, sulphur, iodide and potass-nitrate. Clinically demonstrated certain distinctive tests for bismuth, cadmium,

lead, zinc, tin, arsenic, antimony, mercury and silver on plaster-of-Paris, and charcoal *per se*, and with the above reagents. The separation of silver or gold from the baser metals by the process of cupellation was also demonstrated.

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## NARCOTILE.

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BY S. MOYER, D.D.S., GALT, ONT.

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Dr. Moyer demonstrated the method of administering "narcotile" for general anesthesia. He administered it to three patients, for one of whom he extracted a tooth. Complete anesthesia was secured in fifty seconds, and continued for about two minutes, after which recovery was very rapid, the patient being able to sit up in a few seconds. One of the patients, upon whom all other anesthetics have proved unsuccessful, complained of a feeling of numbness in the nerve terminals for a couple of hours afterward. The other two pronounced it very pleasant and satisfactory, and followed by no unpleasant sensations.

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## DON'TS IN TREATMENT OF PATIENTS.

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BY G. T. KENNEDY, D.D.S., TORONTO.

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Don't expect patients to answer you when they have a full mouth.

Don't fail to convince your patient that all your instruments are perfectly aseptic.

Don't hurry your patient. Let them take their own time.

Don't forget to always be professional in front of patients.

Don't deceive your patients.

Don't be too distant with patients, rather treat them as acquaintances.



## Bacteriological Reports

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### DISINFECTANT SOAPS.

BY R. ALEXANDER.

(In Laboratory of Royal College of Dental Surgeons of Ontario.)

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A series of experiments performed to note the value of an antiseptic or germicidal soap. Two varieties were used, Johnson & Johnson's Antiseptic Soap, and Parke, Davis & Co.'s Germicidal Soap.

The Petri dish containing the first infection of the sarsenious flavus was used for the infection here. With a sterile needle an inoculation was made in the bouillon. After dipping the needle in the bouillon, it was allowed to remain in a saturated solution of Johnson & Johnson's soap. (This would be about the strength of the soap as one rubs it on his hands in washing.) After the needle had been in the soap solution for one minute, a second tube was taken, and the needle passed into it. This process was repeated with a dilute solution (about the strength the water in the basin would be) of the Johnson & Johnson, and also with a dilute, and a saturated solution of Parke, Davis & Co.'s Germicidal Soap. The tubes were then all placed in the incubator. There was an infection of the bouillon before dipping in the soap, and the needle was sterilized between each experiment. The tubes were allowed twenty-four hours in the incubator, with the following results: The J. & J. dilute, very much infected; the J. & J. saturated, a slight cloudiness; the P., D. & Co. dilute, very much infected; the P., D. & Co. saturated, almost clear.

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### VACCINE.

BY A. E. KNAPP AND EDWARD BARBER.

(In Laboratory of Royal College of Dental Surgeons of Ontario.)

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For investigation we were assigned vaccine. The intention was that we should make some cultures from the vaccine used on the students in the college, to see if we could find any infection in it. Not being able to obtain any of the serum in the tubes, we made cultures from the arm of one of the students who had been vaccinated. His arm had swollen and become much inflamed and had the appearance of having some foreign infection. We used a sterilized platinum needle, and taking some material from the margin of the sore of vaccination introduced it into tubes of agar and gelatine, making both stabs and smears.

In two of the tubes we did not get any perceptible growth in twenty-four hours. One of these was potato which we were

sure was infected, because part of a colony grown in a tube the day before, was smeared on it, after which it was put in the incubator. The other was a tube of gelatine, which we felt quite sure was smeared with infection and not put in the incubator. All the other tubes that were smeared and placed in the incubator for twenty-four hours developed growths of the organisms.

The stabs placed in the incubator showed development at the top of the media, and for very little distance down. Slides were made from the organisms grown in the tubes by smearing a few of the organisms on the glass in distilled water, fixing them by passing them through a flame, staining them with a drop of methylene blue, washing off the excess of blue with distilled water, drying and fastening the cover glass over the organisms with Canada balsam. These slides were then inspected under a microscope which enlarged about nine hundred diameters, oil of cedar being used to prevent errors from refraction of light. A large number of tissue cells were found in some of the slides, and easily detected; but the organism obtained appeared to be a pure culture, and one slide especially showed up well under the high power. They all appeared to be very nearly the same size and shape, and quite as uniformly connected in twos. The appearance under the microscope was oblong, rounded ends, parallel sides. They were invariably joined together by their ends, though not always in a straight line, and having the appearance of being in close contact rather than actually joined.

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## TOWELS AS THEY COME FROM THE LAUNDRY.

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BY P. E. CLARKSON AND W. Y. HAYDEN.

(In Laboratory of Royal College of Dental Surgeons of Ontario.)

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First, we decided to try if the ordinary linen, as we get it from the laundry, is really aseptic. Accordingly, with a pair of scissors and a pair of pliers, both absolutely sterile, we snipped a piece out of the inner folds of a towel, and lodged it with every precaution on top of some sterile glucose agar, pressing the particle gently against the surface, and replaced the sterile cotton plug in the test tube, everything having been previously sterilized except the bit of linen. Then, with the same care, we cut off a bit of the fringe of the same towel (this towel had been lying in the locker a week or more, but never used). Of this we made a stab in some agar medium, pressing it with a sterile needle down to the bottom of the test tube, so that it would be away from oxygen. The two tubes were placed in the incubator and watched daily, but even at the end of the seventh day there was no sign of any growth whatever. This, we are pleased to think, goes to prove that we can depend upon our laundry really being sterile, as germs of any kind had every chance to develop if they were present.



## Selection

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### IMMUNE AREAS IN RELATION TO CAVITY PREPARATION.

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BY RODRIGUES OTTOLENGUI, M.D.S., NEW YORK.

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Read before the Chicago Dental Society.

At the March meeting of the Second District Dental Society of the State of New York I had the pleasure of reading a paper in which I questioned the need of extending the gingival margins of approximal cavities, so that they should be covered by gum tissue. In advance of the meeting, copies of my paper were sent to Drs. Black, Johnson and Wedelstaedt of this vicinity and to Dr. Rhein of New York, which gentlemen were expected to uphold the proposition. Four prominent men who would be expected to oppose such extension—Drs. Darby, Perry, William Trueman and Holly Smith, also contributed to the discussion. The result was a tremendous attendance at the meeting, and a specially prepared and thoughtful discussion of the subject. The report of that meeting has been published in *Items of Interest* for May, and this paper being in a sense a continuance of the argument as I view it, I desire to say that in the discussion which is to follow I invite replies to the men who agreed with me at the Brooklyn meeting as well as to such further views as I am to express this evening.

#### DISCUSSION.

DR. G. V. BLACK.—The plans adopted by the operator in filling teeth will reflect his ideas of the causes and conditions of decay, or else he will fill teeth simply as a mechanic. One of the two will occur. Therefore, if we are to fill teeth with the view to cure and prevention, the study of caries must be made, and as we differ in our ideas of the causes of caries, and in our estimate of conditions, so will we differ in our plans for the eradication of caries and the prevention of its recurrence. Our present ideas of caries of the teeth have been a matter of growth. If we go back one century we find certain able men handling this subject, and among them were Fox, and shortly after him Bell. These were among the more prominent men who wrote in English. They were educated men. They were elegant writers whom we love to read, even to-day. They were men who gave a good deal of attention to the subject of caries of the teeth. They were practitioners of dentistry and making the study of this subject the business of their lives, and in their time were the leaders of thought. Their ideas were different from ours to-day. They held that caries was the result of an inflammatory process, and that caries began within the teeth and worked its way to the surface. That idea seems ridiculous to us, and yet it was held by these men and their cotem-

poraries in France and Germany. The best men in the world held to that theory, and yet we may say now that they were short-sighted in their observations. Soon after, or about 1830, this theory was attacked, first by Robertson in England, then by Regnard in France, who first gave expression to a purely chemical theory. This was met again by Discerebode and others, and the contentions were hot between the men of those days—between the inflammatory theory and the chemical theory—and we on this side of the ocean took part in it. Kœker, Harris and other men of their time took part in these discussions, and the result was what was termed the chemico-vital theory, as was held later by Tomes. After Tomes began to do his work, he developed the histology of the teeth, and gave us a knowledge of their structure which we had not had before; and it was found that an inflammation, as we understand it in other tissues, could not occur in the teeth, and this fact changed the ideas of men. Then this chemico-vital theory held sway for a time, developing and changing with the years, and had its influence in directing the course pursued in the treatment of caries, terminating in the purely chemical theory, in the latter part of the work of Magitot. In this the idea of the vitality of the teeth as influencing this carious process was abandoned by the best men in the world.

Preceding this somewhat came the suggestion that micro-organisms had a causative relation to caries. Lieber and Rottenstein first dealt with this subject in a book published in German in 1867 and in English in 1868. They entered the field of discussion, changing somewhat the ideas of men and the methods of treatment, but at first not seriously. But it was followed up, and in 1881 we had the wonderful work of Miles and Underwood, showing conclusively the presence of micro-organisms in the dentinal tubules, and explaining that which Tomes had seen but could not explain—a granular substance in the dentinal tubules. This culminated in the brilliant work of Miller in 1883-4, demonstrating the causative influence of micro-organisms in caries.

In the progress of this work men were changing their views more and more, and making more thorough the work of filling teeth, adapting the means to the ends with the light coming to them. Then the matter seemed to rest for a time. It was necessary for these ideas, for these facts to be assimilated by the profession—particularly the assimilation of facts that had been given to the profession by Miller seems now to have been slow. We must try it anew. We must go over the whole subject anew. We must develop it anew, time and again, and in this way convince men of its truth. As this went on it was found that Miller's work did not explain all. The causative relation of micro-organisms to decay was clearly shown to exist, but these same micro-organisms were found continually in mouths immune to decay. There was something else. At that time the teeth of one person were supposed to be weak, and would easily break down; the teeth of another were supposed to be strong, and did not break down readily, causing apparent variations in the action of the specific causative influence, and many men were at sea as to caries of the teeth. In my papers



of 1895 I think I convinced many men that the difference in the occurrence of caries in different persons was not on account of differences in teeth. Differences in the teeth do not explain the differences that we find in caries of the teeth in different persons ; neither do they explain the differences in caries of the teeth at different times of life. Gradually men became influenced by this thought in the matter of the treatment of caries of the teeth. We find expressions in the literature used in this way and in that way, by some not accepting the later developments, but guarding their expressions so as to be a little nearer in harmony, and we are thankful for that. Then came Williams, who demonstrated the microbic plaques which I spoke of a number of years ago, but could not demonstrate satisfactorily. He gave us another thought, and we come back to the old statement made by Robertson, or the still older statement that seems to have been made by Mesue, in 1400, when he says in his quaint old German, although I will repeat it in English, that by gathering of food at certain points, and its decomposition, a "sharp moisture" (an acid) is produced that eats away the teeth—purely a chemical theory. Miller explained that decomposition and its relation to caries. Practically that is all he did, but that was enough for one man in a lifetime. Now, we will restate the proposition as advanced by Robertson, that the acid which produces destruction of the teeth is produced by decomposition at the very spot where the decay occurs. We are now ready to state and apply this principle as confining the beginnings of caries to certain areas of the surfaces of the teeth that are not habitually kept clean. Now, going a step further, we come to the study of immunity and susceptibility, comparatively a new proposition in dentistry. In the study of immunity and susceptibility of teeth to caries and the causes which surround and control these, we are reaching the limit of our present knowledge. We have gone step by step, building up our knowledge of this process of decay to this point, but in the study of immunity and susceptibility and the causes which bring them about, there is yet much uncertainty. We do not know the facts lying next beyond, nor how this may modify our application of the facts obtained. Will it stop here? No. As the years go by we will reach further out into this field. Indeed, we are beginning the process of actual knowledge on this point in the work of Micheals, in which he brings out by laboratory experiments the differences in the salivary fluids, which bring decay in one case and bring immunity in the other. It will require time to assimilate this thought, and it will require time to apply it in our general practice. But the time is coming when we, as dentists, must begin this study in earnest. The younger men, who have more time before them to spend at it, must begin in earnest the study of serum pathology in dentistry. But for the present we must labor with the light we have—not that we have attained full knowledge of these subjects, not by any means ; but with the light we now have we must study the subject, and apply our means to these ends. In this way we should study for the present very carefully the regions of the teeth that are liable to decay, and when we look over the human teeth with this

thought prominently in our minds, we find that the beginning of caries—mind you, I say beginning of caries—for it begins at certain isolated points upon the teeth, either in open fissures or deep grooves, or pits, or upon the axial surfaces of the teeth in such positions as are not kept well cleaned.

There has been some quibbling in the Brooklyn discussion over the term “self-cleaning areas of the teeth.” Every dentist should know by this time what that means. It simply means those areas of the teeth that are kept clean by the normal motions of the mouth, by the motions in chewing food, by the excursion of food over the surfaces of the teeth, etc.—nothing more, nothing less. This is a simple proposition, and we will find as we study it that we have practically no caries beginning upon any such surfaces. These, with the portions covered by healthy gum tissue, are the immune areas of the teeth.

What is extension for prevention? Simply the extension of a cavity margin toward or into the areas that are self-cleaning. How often, comparatively, do we find caries beginning upon the angles of the teeth? I mean those angles that divide the different axial surfaces from each other, as the buccal from the proximal, and which extend from the occlusal to the gingival. I do not say that it never occurs; but comparatively how often do we see it beginning upon the angles of a molar or bicuspid, or the angles of any tooth? We find it beginning upon the proximal surfaces, and upon the buccal surfaces of the teeth. We do not find it beginning upon the angles of the teeth, because in mastication the food in passing through the embrasures is forced between the angles of the teeth to the gum line. That is a simple proposition that any of you may prove by your remembrance of what you have seen. Then, where are the areas of liability upon the buccal surfaces, exclusive of the buccal pit? Near the gum line in the gingival third of the crown. Over that bulge of the tooth, or where the tooth bellies out to form the curvature of the buccal surface, the excursions of food clean it; but near the gum the food slides over, and does not clean it well. The greatest liability to decay is central to this gingival area, but extends mesially and distally toward the angles of the tooth. On the proximate surfaces of the teeth the food is divided by the contact point and spreads either way, to the buccal and lingual, over the angles of the teeth, and if we will examine our cavities of decay in their inception or early beginning we will find a central spot of penetration of decay to the gingival of, but near the contact point, and whitened lines extending near the gum line toward the angles of the tooth. These represent the area of liability. We cut these out in the preparation of cavities. That is extension for prevention. That is all it means. In cases in which there is great susceptibility to decay, you will find these lines long, and you will need to cut far. In cases of comparative immunity it is not necessary to cut so far.

A word or two in regard to the position of decay, and the idea that a cavity occurring in that position is free from the margin of the gum. What is the normal condition? I ask this question seriously. Does not the interproximate gum tissue normally fill



the interproximate space to the contact point? Certainly it does, and it is only when that is pressed down more or less by food pressing through the contact point and lodging there that we get caries at that point. The more it is pressed down, and the more the gum tissue is absorbed away, the broader the area of liability to decay. It is increased in size by the pressing away of the gum tissue. Now, gentlemen, I submit that we do nearly all of our filling in the teeth of patients who are less than twenty-five years old, and before there is much loss of gum tissue, and if we do it at that time, and the cavities are only very reasonably cut, how are you going to fill them and leave a space of tooth tissue upon the proximate surface between that filling and the gum margin? I do not know how it is done in New York, but it seems that the people there must have gums different from the people "out West." I assure you that in the West we do not have that condition. We do not have that condition in people for whom we do most of our work. In persons as old as myself, and particularly those who have had the misfortune to have more or less trouble from gingival pericementitis, we will have gums that are short, and it will often open up very nearly the whole interproximate space. I have never argued for cutting all of the approximal surfaces out in such a case unless they lie in close contact, and there is an appearance of susceptibility to decay. But generally the susceptibility to decay is gone before this occurs, for most of these persons are old enough to have become immune. You talk about little bits of proximate fillings that have protected teeth for fifty years. I have a cavity in my second molar that was open when I was eighteen years old. It has no filling in it, and has not had, and it is no bigger to-day than it was forty years ago. These little fillings protect, so to speak, where there is no need of protection—when immunity has come, and there is no longer need of protection.

I remember very distinctly digging for skulls in the mounds near St. Louis, a number of years ago. I opened a grave in which there were five very old skeletons. All of them seemed to have died by violence. Among them there was a young woman. The third molars had not yet come through, and with the exception of these the crowns of all the teeth had been destroyed by caries. Lying by her side there was a man who was older. His teeth were much worn. There were small cavities in the proximal surfaces in nearly every one of the bicuspids and molars; the cavities had broken more or less to the occlusal in the wearing of the teeth, and some had worn out. In looking over these I said, here is a case in which decay does not seem to have harmed the usefulness of the teeth. Here is another case where the teeth are destroyed by caries. To one immunity had come with advancing age. To the other the susceptibility had been so great that the teeth had been destroyed in youth. We must recognize these differences. We must recognize immunity. We must recognize returning susceptibility in the case Dr. Wedelstaedt has related this evening. We must recognize the fact that although immunity may have come, susceptibility may come again, and we must guard our patients against that risk. Hence, I say, until we can know well enough of immunity and sus-

ceptibility to be able to know that our patient is immune and will remain so, we must guard against the recurrence of susceptibility in cases that are coming to us. We do not yet know how to manage caries otherwise than by so filling the teeth as to guard against its recurrence. When we do know, then it will be time to say that we shall not have to so fill teeth to guard against it. We must prepare for the emergency. Hence I would suggest great care as to the cavities we fill, by cutting well toward the areas of immunity. That is all. And when I say cut well toward the areas of immunity, it does not mean necessarily and specially toward the gingival margins so much as it does toward the bucco-gingival and linguo-gingival in molars and bicuspid, squaring out that particular portion of the cavity. It is not so generally necessary that we cut the central part of the cavity farther to the gingival. Often it is unnecessary to do that, but generally we should square out those angles to the gum line and make our cavity of box form. It is the simplest kind of cavity to fill, and it is a form of cavity that the exigencies of the case seem to require. When we do that we remove these areas of liability.

I wish to say a few words now in regard to contact points. Some of the dentists down East use the word "knuckle." It is hard to know what they mean by that term. It has been used for twenty-odd years. No man has ever explained precisely what was meant by the word "knuckle" in the sense in which it is used. I considered the word carefully when I wrote my papers of 1891, and I came to the conclusion that it was not a good word, and that I would not use it. I used the words "contact point," and described that instead. Not enough attention has been given to this matter. With all that Drs. Johnson, Wedelstaedt and many others have done for the profession at large, it does not seem to me that dentists comprehend the full meaning of this term. Guard the contact properly, and you will not often have recurrence of decay in the central portion of the gingival margin. Of course, you will get it occasionally, and not so infrequently either in persons otherwise immune to decay. They have not had caries of the teeth, and the contacts have worn until they are flat and have begun to hold food between them. We have not studied this subject sufficiently. If you want to know more about the wearing contact points, come to the museum of the Northwestern University Dental School, and I can show you any number of these cases where the contact has been flattened until it holds food, which crowds down more and more until a cavity has been formed at the gingival line, instead of in the ordinary position of cavities near the contact point. In that class of cases you will have cavities at the gingival line centrally. Those are in the older people. I do not care how far you cut; you may put on a crown, you may run the bands well up, and still in cases of very flat contacts there will be decay in that position. It will begin centrally. But where you simply extend enough to remove present decay, making good contacts, it will begin at the linguo-gingival and bucco-gingival angles, and not centrally. The central portion is often the immune area under these conditions. It is this class of cases in which we have



not taken proper care of the contact points, in which we get this central decay, beginning, perhaps, at the gingival line and working rootwise and crownwise, perhaps leaving sound tissue between the filling and new cavity. These cases which begin to decay again on account of failure of proper extension decay along the margin of the filling, not away off, but along the margin of the filling, is where they begin to decay, because that is the most susceptible portion of the tooth.

DR. C. N. JOHNSON.—So far as I am concerned I do not feel like discussing this subject at all. At the outset I am tired of it. I have before this said all I ought to say on this subject, and I thought and do think that the arguments for and against the practice of extension in this particular region have been sufficiently gone over.

In the paper Dr. Ottolengui read at Brooklyn, I found very many things in it with which I could cordially agree; in fact, I found very few things in that paper to disagree with. But with his paper to-night I find almost nothing that I can agree with. However, much of what I had expected to say has already been said better than I could say it, though there are a few points I want to touch upon.

The essayist has said, if I understood him correctly, that he has not found recurrence of decay at the gingival margins of his fillings that have been put in in the last twenty-five years. I should like to ask him if he has never found what he calls a continuance of decay at the gingivo-buccal or gingivo-lingual angles of these fillings? If he has not, then I am willing to take off my hat to him, and I wish to say Providence has been kinder to him than to any other practitioner that I ever knew.

This whole question is simply one of observation. Dr. Ottolengui says it has been his observation that fillings do not fail at the gingival margin when the margin has not been extended so as to carry the margin of the filling under the gum; but that fillings have failed frequently when the margin has been extended under the gum. My observation, and the observation of others with whom I have talked on the subject, have been just the contrary—that in the majority of cases, where the gingival margin has not been so extended, so as to carry the margin of the filling under the free margin of the gum, we do find a continuance of decay. It is the exception to find decay when the margin has been carried under the free margin of a healthy gum. Dr. Black brought out very clearly and forcibly one point I made prominent in my Brooklyn paper, which was this, that when the gingival margin of the cavity or filling does not extend under the free margin of the gum, the filling so placed must be an exceeding shallow filling occluso-gingivally, because, as Dr. Black has said, when the gum tissue is in a normal condition in the interproximal space, it comes up in an arched form reaching to the contact point. When we have decay beginning in the region of the contact point, the cavity cannot extend any appreciable distance without passing under the gum, providing the gum is normal in form, and when the gingival margin of a filling extends under the free margin of the gum, and

the filling is properly inserted and the gum tissue in a healthy condition, I consider the margin free from recurrence of decay; but I do not consider that margin free from recurrence of decay in ordinary cases unless it is so extended. That is my observation. Dr. Ottolengui says that it is a matter of manipulation, and not of environment. Is it? Let us see. Where do we more often than any other find recurrence of decay around our fillings upon the proximal surfaces of incisors? Do we not find it at the gingivo-lingual angles of these cavities? Has it not been your experience that we find recurrence of decay oftener in that place than in any other position? It has been mine. Is that the point where we are likely to fail in our manipulation? Is not that the point of the whole cavity that we have under better observation than any other? We are looking at this angle all the time we are operating; we have the best access to the angle. We can form it as perfectly as we wish, and the relation of the force of the plugger in condensing gold against the angle is absolutely perfect. If we make a perfect margin at all, we make it at the gingivo-lingual angle. Still it is at that angle where we more frequently than any other find recurrence of decay. Is it, then, a matter of manipulation instead of environment? It seems to me a matter of environment.

But I am impressed with one thing, that it matters very little after all what may be the personal opinion of any one man in regard to this question. It matters very little what my opinion may be, or what Dr. Ottolengui's opinion may be. But I tell you, gentlemen, what is a matter of serious import, and that is that you and I, and all of the profession generally, are set to thinking upon this problem. It is not a problem that can be settled by debate either here or in Brooklyn or any other place. It is a matter that must be settled in each individual case with the patient in the chair, the patient day after day, and all I ask of this or any other audience is that they observe their patients carefully as they come to them from day to day, and study this question from the point of view of the tooth as it presents itself to them in practice. See where you have your failures and where others have failures, and base your future practice on observations made in the mouth, and I shall feel safe as to what that future practice may be.

DR. OTTOLENGUI (closing the discussion).—I promised in the course of my paper that if it should be proven that Dr. Black's method is right, I would go home and preach and practise it. That is what I am going to do. But I find that Dr. Black does not mean what I understood him to mean by his paper of 1891.

I learn to-night that where there is considerable tissue between the margin of the cavity and gingiva, he does not cut it away. Neither do I. Also that in patients where the interproximal space is entirely filled by gum septum, and he cannot prepare the cavity without going below the gum, that he cuts under the gum. That is what I do. So we do not seem to be quite so far apart after all.

I will touch on a few points that have been made by one or two speakers, more especially by Dr. Johnson. I stated in the paper that I have not seen recurrence of decay at the gingival margin.



Then Dr. Johnson asked me whether I had not seen continuance of decay at the gingival margin—that is, in cases where I did not cut out the infected territory at the labio-gingival and the linguo-gingival angles, and filled the teeth without making extension, if I had not seen continuance of decay? I shall not argue that I would not. If I left infected dentine there or anywhere else, most assuredly decay would take place. In other words, if we do not go beyond the affected territory, we will have continuance of decay. Where I have cut out those areas and filled them, even without going under the gum margin, I have not had recurrence of decay.

DR. JOHNSON.—I did not make use of the term “infected territory.” What I want to ask you is this: In those cases where you have prepared cavities that are narrow bucco-lingually, and in which you have been able to reach sound territory, have you never seen recurrence of decay, particularly at the bucco-lingual and bucco-gingival angles?

DR. OTTOLENGUI.—I do not remember ever having made such narrow cavities. I have not argued against lateral extension. I am talking about gingival extension. I have always cut away a good deal more than many gentlemen in this audience may imagine. I simply say, that the mere fact of extending a cavity under the gum does not necessarily bring you any certain salvation. I am placed in a peculiar position in relation to Drs. Johnson and Black. They are combating my position, while I am not disputing theirs. I have admitted that a properly made filling extending under the gum will be safe. But it is not necessary to so extend it, because a properly made filling in a cavity which does not reach the gum will also be safe. That brings up the question raised by Drs. Wedelstaedt and Johnson as to what I mean by manipulation, although that phase of the subject has been partly covered by Dr. Nyman. Dr. Nyman mentioned several reasons for failures of fillings and for recurrence of decay, and nearly every one of them was manipulative in its character. He did not include one environmental reason in his list. He told us about the fracture of the margins, improper packing of fillings, etc. It is not at all improbable that my preparation of the gingival margins of cavities is a little different from that of the gentlemen who have seen so many failures in the West.

DR. NYMAN.—In giving the reasons for the recurrence of decay, I thought I dwelt on environment when I spoke of failure to extend the margins of the cavity to immune areas.

DR. OTTOLENGUI.—That is part of a manipulative failure. The cases cited in my paper were not introduced as a basis of practice, but they were introduced to show that where the bands were properly placed under the gum recurrence of decay was a possibility. I tried to prove that that is not absolutely an immune area. That is all. My theory is that decay begins at the vulnerable point, and a filling properly put in will stop decay anywhere on that surface. What constitutes the proper preparation of that cavity? Extending the cavity until we can put a proper filling in it. A cavity must be extended until all walls are so strong that they will remain in perfect physical condition after resisting the

force necessary for properly packing gold. There is a recurrence of decay in many instances because cavity extension has not been carried far enough. At the gingival margin it is necessary that the margin shall be square and flat, so that you can condense the gold solidly. If you have extended the angle sufficiently in both directions, but especially in a lingual direction, it is unnecessary to extend under or toward the gum.

There are one or two minor points I should like to touch on. Dr. Wedelstaedt took several minutes to explain to us that teeth were good after they were filled. I do not deny that. I admitted in my paper that teeth are useful after they are filled, but certainly no more useful than they would have been had they never decayed.

Dr. Wedelstaedt raised a question with reference to the occlusal surfaces. It is difficult to make myself clear on that point of extending a filling over the margins unless I have a blackboard. As we have no blackboard here, I will endeavor to do so. I spoke of cavities that were extended into the sulci. If there is any necessity of extending cavities into the sulci, it logically follows that the sulci are not already opened wide; that we are dealing with an initial cavity, and decay at the ends of the sulci is not yet existent. The preparation of such a cavity, as I said in my paper, would be as wide as necessary and as narrow as possible, and unless the gold laps the edges there will be left grooves to hold debris and invite decay.

I want to say a few words more. I will read a paragraph from the paper which Dr. Wedelstaedt read in Brooklyn:

"I examined the gingival margins of one hundred proximal fillings which I found in the teeth of those who consulted me. In only five cases out of the hundred were the fillings flush with the margins. In ninety-five cases there were overhanging margins of filling material, which in a number of cases amounted to over 3.5 millimeters in thickness. I began examining gold crowns, and out of one hundred crowns so examined found just one under which I could not send my exploring point. Some of these crowns were so large that the edges of the bands at the gingival margin extended fully 3 millimeters from the tooth itself. I do not wish to be understood as saying that over-plus filling materials or bands are good things, but I do say that as long as these are not irritants, the only harm I know of their producing is to keep the mouth in an unhygienic condition, invite disease, and be a menace to the stability of the rest of the teeth. But in so far as ever finding any cavity of decay beyond such margins—well, this I have never seen."

If that condition of things can exist in the mouth under the gum septa, and the teeth remain healthy, all I have to say is that you must have different gums to deal with in Chicago from what we have in New York.—*Dental Review*.



## Proceedings of Dental Societies

### THOSE IN ATTENDANCE AT THE ONTARIO DENTAL SOCIETY.

The following is a list of the dentists present at the fourteenth annual meeting of the Ontario Dental Society, with the year in which they received their license:

The first number after the year is the number of graduates in that year, and the second the number present.

- 1868. J. B. Willmott, Toronto; H. M. Howard, Dundas.
- 1869. D. V. Beacock, Brockville.
- 1871. S. Zimmerman, Toronto.
- 1872. W. Adams, Whitby; C. E. Klotz, St. Catharines.
- 1873. R. J. Husband, Hamilton.
- 1874. G. A. Reid, Fergus; J. G. Adams, Toronto.
- 1875. R. E. Sparks, Kingston.
- 1876. (16—0.)
- 1877. (21—3.) C. B. Dorland, Oakville; H. R. Abbott, London; W. A. Sudworth, Ingersoll.
- 1878. (27—4.) John Robertson, Ottawa; A. W. Spaulding, Toronto; H. Rea, London; C. O. Bean, St. Catharines.
- 1879. (17—2.) W. A. Brownlee, Mount Forest; E. Hart, Brantford.
- 1880. (15—1.) J. Mills, Brantford.
- 1881. (15—2.) J. H. McCullough, Perth; J. P. Marshall, Shelburne.
- 1882. (20—2.) J. J. Teetzel, St. Thomas; J. D. Hamill, Meaford.
- 1883. (11—2.) Thos. Henderson, Toronto; F. J. Stowe, Toronto.
- 1884. (13—3.) F. Killmer, St. Catharines; C. V. Snelgrove, Toronto; F. Hansell, Hamilton.
- 1885. (8—2.) J. F. Adams, Toronto; R. F. Morrow, Peterboro.
- 1886. (19—5.) W. M. Wunder, Toronto; Charles McKinlay, Georgetown; R. Haslitt, Toronto; J. A. Marshall, Belleville; A. M. Clark, Woodstock.
- 1887. (16—6.) G. A. Swann, Toronto; M. B. Mallory, Toronto; D. Baird, Uxbridge; F. L. Henry, Oshawa; A. H. Allen, Paisley; C. H. Ziegler, London.
- 1888. (16—4.) W. E. Willmott, Toronto; F. J. Capon, Toronto; A. J. McDonough, Toronto; J. A. Mills, Toronto.
- 1889. (20—3.) R. G. McLaughlin, Toronto; J. W. B. Topp, Bracebridge; E. H. Eidt, Stratford.
- 1890. (33—10.) S. Moyer, Galt; G. P. Allen, Mount Forest; J. H. Irwin, Collingwood; J. F. Simpson, Trenton; M. Cav-

anagh, Owen Sound; Allan Black, Kingston; T. Butler, Toronto; C. M. French, Brampton; M. W. Sparrow, Toronto; A. W. Thornton, Chatham.

1891. (29—4.) A. H. Mabee, Gananoque; G. S. Martin, Toronto Junction; H. R. Thornton, Petrolea; J. E. Wilkinson, Petrolea.

1892. (22—6.) H. S. Anderson, Mitchell; W. A. Burns, St. Thomas; R. Agnew, Clinton; G. J. Musgrove, Niagara Falls; F. D. Price, Toronto; D. C. Smith, Stouffville.

1893. (37—15.) J. E. Wilkinson, Toronto; W. T. McGorman, St. Mary's; G. A. Bentley, London; G. J. Coram, Drayton; C. H. Waldron, Toronto; E. A. Peaker, Toronto; H. E. Eaton, Toronto; R. Meek, Orangeville; Harold Clark, Toronto; E. A. Harrington, Toronto; E. Foster, Toronto; Fred. T. Coghlan, Guelph; J. J. Loftus, Toronto; R. J. Loughheed, Toronto; Mrs. Wells, Toronto.

1894. (31—6.) A. E. Webster, Toronto; C. N. Abbott, London; J. R. Mitchell, Perth; M. F. Cross, Oshawa; B. F. Nichols, Toronto; A. A. MacKenzie, Stratford.

1895. (46—8.) A. D. McIntyre, Toronto; James Barnsley, Toronto; H. C. Skinner, Erin; W. G. Ganton, Uxbridge; W. J. Bruce, Toronto; W. S. French, Amherstburg; J. F. Ross, Toronto; R. G. McLean, Toronto.

1896. (31—10.) W. G. Gowan, Creemore; W. Cecil Trotter, Toronto; C. E. Pearson, Toronto; James C. Moore, Orillia; George J. Jordan, Toronto; W. Burnet, Ingersoll; L. M. Mabee, Goderich; L. G. Campbell, Markdale; R. H. Henderson, Toronto; R. M. Armstrong, Oshawa.

1897. (44—15.) Guy H. Hume, Toronto; G. H. Kennedy, London; R. J. McGahey, Toronto; J. C. Sweet, Hamilton; John Steele, Fergus; G. A. Roberts, Toronto; Charles R. Bean, Chesley; F. Butler, Aurora; J. P. Pulkinhorn, Deseronto; J. R. Paton, Dutton; H. S. Reynolds, London; J. A. Bothwell, Stratford; F. Gilmore, Toronto; A. E. Gunnings, Thornbury; G. S. Richardson, Newmarket.

1898. (54—14.) G. D. McGrattan, Port Perry; Arthur Day, Lindsay; H. Bannerman, Owen Sound; W. H. Woodrow, Brockville; R. N. Berry, Caledonia; W. G. L. Spaulding, Toronto; W. H. Bulmer, Beamsville; F. A. Sellery, Hensall; O. A. Winter, Toronto; W. D. Staples, Hanover; Washington Buchanan, St. Catharines; A. A. Babcock, Brantford; H. M. Kallfleisch, Elmira; A. C. Burnet, Hamilton.

1899. (84—35.) E. C. Abbott, Toronto; P. P. Ballachey, Brantford; George Gow, Toronto; C. M. Reeves, Tweed; A. W. Winnett, Toronto; L. L. Follick, St. Mary's; J. S. Somers, Toronto; R. Lederman, Milverton; S. B. Gray, Ridgetown; A. A. Smith, Toronto; F. G. Brethour, Toronto; W. A. Maclaren, Toronto; G. W. Grieve, Toronto; F. C. Frank, Orangeville; T. F. Campbell, Galt; G. E. Holmes, Clinton; J. C. Devitt, Bow-



manville; W. J. Schmidt, Berlin; L. C. Wadsworth, Simcoe; A. G. Campbell; F. A. Ballachey, Buffalo, N.Y.; S. L. Frawley, Toronto; E. M. Doyle, Brantford; C. A. Kennedy, Toronto; H. A. Clark, Brockville; R. M. Peacock, Toronto; R. H. Cowen, Hamilton; J. W. Armstrong, Toronto; F. A. Currie, Toronto; E. C. Murray, Flesherton; W. A. Maclean, St. Catharines; W. T. Hackett, Bolton; W. G. Thompson, Hamilton; J. C. R. Fitzgerald, St. Catharines; G. L. Palmer, Toronto.

1900. (71—21.) John E. Rhind, Toronto; E. C. Campbell, Shelburne; W. A. McDowell, Listowell; Douglas Foster, Guelph; F. C. VanDuzen, Toronto; H. J. Hudson, Toronto; E. S. Gausby, Toronto; C. W. Ellis, Beeton; G. Howard, Toronto; E. S. Barker, Stouffville; W. B. Amy, Toronto; J. Macpherson, Paris; W. J. Woods, Toronto; E. C. James, Woodstock; Fred. R. Mallory, Toronto; E. W. Moles, Norwich; W. J. Bentley, Sarnia; Wallace Seccombe, Toronto; G. M. Hermiston, Picton; J. M. Mitchell, Collingwood; L. Doering, Mildmay.

1901. (27—10.) J. R. McGregor, Elora; J. A. Robertson, Bracebridge; H. N. Hartman, Meaford; J. S. Chambers, Toronto; K. C. Campbell, Carleton Place; E. W. Paul, Toronto; J. H. Purdy, Cobourg; W. J. Norris, Brantford; A. R. Davison, Guelph; J. M. Palmer, Toronto.

1902. (43—12.) A. E. Knapp, Gravenhurst; S. Gowan, Brockville; G. H. Campbell, Orangeville; Charles G. Scott, Toronto; A. D. A. Mason, Toronto; H. G. Robb, Niagara Falls; W. Y. Hayden, Goderich; O. K. Gibson, Ottawa; R. E. Hassard, Toronto; J. M. Jones, Hamilton; W. E. Cummer, Toronto; G. M. Trewin, Collingwood.

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## MINUTES OF PROCEEDINGS OF BIENNIAL CONVENTION OF THE CANADIAN DENTAL ASSOCIATION, HELD AT MONTREAL.—SECOND SESSION.

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*(Continued from February issue.)*

THE CHAIRMAN.—The next paper before the meeting is that of Dr. Bower, on "Dentists in the Army." (See page 145.)

### DISCUSSION.

DR. BOWER.—The paper I am about to read is something of a *resume* upon the work already done. In consenting to write a paper for presentation to you, on the subject of dentists in the army, I do it with a degree of hesitation, knowing well my incapacity to treat the subject as it ought to be treated. The British Government has not yet done anything material with respect to having army dental surgeons appointed, although things are

drifting on that way. Of course Canada has no army dental surgeons, although we hope that it will come—we see in the press that such things have happened and that there are army dental surgeons in Canada; but there is no truth in that statement whatever. I am indebted to some of our friends across the line, who have sent me from Washington a copy of the dental law of the United States. They have a corps of dentists to attend to their different regiments. The House of Commons has not taken much interest in the matter—not nearly as much as it deserves; and there is a little resolution which has been written out on the subject, that I would especially beg leave to move:

*Resolved*, That the members of the Canadian Dental Association favor the adoption by the Militia Department of provision for a regular army dental staff, which shall be a distinct branch of the service; the members of which shall hold rank as do the general surgeons; and for the attainment of this end that a general committee be appointed, consisting of two members from each Province and the Territories, and where two societies exist in a Province, that additional members be appointed, so that every Society be represented; this general committee to appoint a central sub-committee; that the nomination of members for this general committee be left in the hands of the Nominating Committee.

I thank you, gentlemen, for your attention, and trust that my resolution will meet with your favor.

DR. MCINNIS.—We have just been discussing army matters, and as in all societies a man is only expected to do his duty, there are certain rules that he must follow, and if he is called upon he must obey. Now, I have been called upon to discuss this paper, and I rise to address you because I have been called upon, and not because I know anything particular about the question. I have been pleased to notice, for some time, that the Eastern Ontario Dental Society has been making such progress in the matter. I have seen, some time ago, correspondence on the question, and at that time I took the trouble to look up the state of affairs in connection with the army, and the state of affairs there is much to be commended. The examinations and the standard adopted by the Americans for army dentists is certainly a very high one, and they treat their men fairly. They give them, I believe, a rank of lieutenant.

DR. ABBOTT.—I think you are mistaken, Dr. McInnis.

DR. MCINNIS.—I may be; I don't remember perfectly. "Practically dental surgeons have no rank in the army; but are permitted to wear undress full uniform of assistant surgeon, with the rank of first lieutenant."

DR. ABBOTT.—They are allowed by courtesy to wear the uniform of lieutenant, but they get no rank, nor no pay that the rank



would carry; consequently they get no rank. They do not get the pay of a lieutenant.

DR. MCINNIS.—Then the members of that corps must be pretty well paid. (Laughter.)

DR. ABBOTT.—It is only a courtesy. The rank is given them, because they recognize the dentist as a little above a common ordinary soldier.

DR. MCINNIS.—I always knew the American people; I thought they would recognize that. (Laughter.) There is not a dental corps in connection with the army of this country, and I think there should be in Canada, where there are regular troops, and where there is considerable trouble occurring through soldiers' teeth, and the slaughter—I believe "slaughter" is the word—by the hospital surgeon, who is not as well acquainted with the matter as he might be. While we are, perhaps, not so much interested and have not so much care and feeling for Tommy Atkins, in the British Army, we are particularly interested in knowing that any contingent that might be again sent by Canada in support of the Mother Country in foreign wars, that our men who are to form part of the British army will be properly cared for in a dental way. I discussed the matter with a number of those who returned, and they spoke of the dreadful lack and want of dentists. One of them told me how he was kept in a hospital in South Africa with a bad tooth for something like seven weeks. Of course that was a considerable loss for the army that one man should be kept seven weeks, when probably with a dentist he would have removed the cause in five minutes. It was simply a case of mal-eruption of the wisdom tooth. The army surgeon undertook to remove the wisdom tooth, but left the patient in a dreadful condition, and he was sent to hospital for six or seven weeks. Finally, another contingent came along, and with them was a dentist who had gone out as an ordinary soldier; and he came into the hospital and saw the man, and gave him immediate relief—got the tooth out, and the man was immediately relieved; and in the course of a few hours got better. I do not know whether this man is here now to-day; he may be. But I am informed that he did nothing, practically, for weeks and weeks, except work at his profession. The British officers were so glad and so pleased to have a proper dentist to attend to them that he was taken from the ordinary private duty, and for weeks together did nothing but practise dentistry, considerably to his own profit and the comfort of the soldiers. There is no doubt but it would be an excellent thing; and I agree with Dr. Bower that there should be a committee appointed to express the opinion of this Association officially, for in any matters political the opinion of this Society would have considerable weight—I say, that if a committee were appointed to express the opinion of the Society on this matter of dentists in the army, it would have a good deal of weight; but I do submit that the committee as pro-

posed by Dr. Bower is entirely too large. If you want to make a committee a dead failure, put on so many that you cannot get a quorum, and you are taking the best possible means of attaining your object; but if you have a small committee, and give it plenty of power, you will reach the end you wish to obtain much earlier. I have to commend Dr. Bower's paper, and to commend Dr. Bower for bringing it before this meeting.

Dr. J. E. Wilkinson, Toronto, Ont.

The subject, or object, of Dr. Bower's paper has been presented at a time most opportune. Dr. Bower deserves credit for investigation, interest and personal effort taken in this matter. Initial public action within the dental profession was taken by the Eastern Ontario Dental Association; very promptly after, the Toronto and Ontario societies passed resolutions and appointed committees. All three societies have had correspondence with the Minister of Militia and the Director-General of the A.M.C. No action was taken, no definite understanding arrived at, but recognition was given and interest created. Correspondence and interviews were held with military men of all ranks for the purpose of finding out opinion and sentiment. Such an organization for our militia is a great need. Its present non-existence is a shame and a disgrace. Surgeon-Major Natrass states that in the campaign in our North-West he had to extract for officers and men alike, teeth which could readily have been rendered comfortable and saved, by ordinary dental attendance. Most dentists here present could tell lamentable experiences as related to them by our Canadian soldiers who served in South Africa. In one batch of some fifty men, who offered to enlist in the Gordon Highlanders, eight who were otherwise fit were rejected on account of their bad teeth.

Some military men are opposed to a standing army dental staff in time of peace, while they favor it in cases of active service; but the old motto, "In pace paratus," "prepared in peace," still holds good. Not only so, but at our annual instruction camps there is always some need of dental services.

The ebullition and effervescence of superficial military sentiment have for the present passed over. A business-like, practical spirit at present exists for the elimination of the defective and weak, and the incorporation of the perfect and strong. This is a golden opportunity for our present purpose, and as opportunity is bald behind and does not tarry, let us grasp the forelock while we may, if we can. The attainment of our purpose is by no means assured. Politics, medical sentiment and personal interests will all count, and to an uncertain extent negatively.

Just now I hope a resolution will be adopted by this Association favoring the scheme, also that a comprehensive and representative committee be formed having a small central sub-committee.



It is desirable that the army dental surgeons be in (1) a distinct branch of the service; (2 and 3) hold the same ranks and receive the same pay as the general surgeons, and, perhaps, (4) that a special qualifying examination be required of candidates for appointment. Perhaps at present the staff could consist of 21 in all: 1 dental surgeon-major, 6 dental surgeon-captains, 7 dental surgeon-lieutenants, and 7 dental surgeon-sergeants (who would be students) as assistants, with provision for orderlies. The distribution could be equally among the seven military districts, the members being associated with, but independent, from the A.M.C. companies. Details of work, investigation and means, as well as the character of the scheme, should be left in the hands of the general committee.

I trust some such scheme will be favored and some such committee appointed in the interests of our country, our soldiers, and, incidentally, our profession.

DR. ABBOTT.—I have much pleasure in seconding the motion of Dr. Bower; and in doing so I might just add my view. I might say a few words, as I am intimately connected with the militia, having command of a squadron of cavalry; and while in camp I was very painfully reminded of the necessity of having a dentist in connection with the militia. When I first joined I was a subaltern, and I have been through all the stages since. I could have, if I had been willing, devoted my entire time to dentistry, rather than to militia matters. Now, I think a man should not be called upon, if he is a dentist, and goes in for a military training, he should not be compelled to devote his time to dental matters. Some people say that it is not necessary to have a dentist at camps of military training; my experience is entirely different. I find it is absolutely necessary, if you wish to preserve the teeth of the men, to have a dental surgeon to attend to them. He will not extract a tooth unless it is absolutely necessary, whereas the surgeon will often extract a tooth when it is not at all necessary to do so, and even will send his assistants to do it; and we all know the crude manner of the majority of some of those medical students in extracting a tooth. It is barbarous. Therefore it is absolutely necessary to have dentists, in times of peace, as well as in war. One thing I would like every dentist to impress upon the members of parliament is that we are taking united action in the matter; and if that is so, you will find that the proposal will go through the House, particularly as there is no liability of any organized opposition being made to it. We may get opposition from the medical men; they are not willing to grant that we should have the same status in the army or in the militia as they have, but we should accept nothing but equality with the army medical man. I think we are the equals in our specialty, and even the superior in the oral cavity. (Applause.) In the United States army the dental surgeon has no rank whatever, except through courtesy, because they have been compelled

to recognize him as an equal; as a courtesy, therefore, he is allowed to wear the uniform and badge of a lieutenant, but he does not get any army rank or any army pay; it is only through courtesy. Now, I heard a paper from one of the dentists who went to the Philippines, and while he spoke encouragingly of the prospects that one day they would be recognized, at the present time they are not, except through courtesy. If they were on the boat, he would be down with the non-commissioned officers and men; he would not be allowed to go on the main deck with the other officers. Now, none of us are willing to accept that. He that asketh much getteth much. Let us ask what we want, and insist upon getting it; and if we unitedly present the petition, I have no doubt at all but what, with the influence of our members of Parliament, and the additional influence that is at our disposal, but that the Militia Department will grant our request. I have pleasure in seconding the motion.

THE CHAIRMAN.—One point that would be a valuable one, I think, to make, would be to try and obtain statistics of how many recruits are refused by the regular army on account of defective teeth. I think we all know, from our own experience, that some of the men who are refused are perfect in every other respect. I know of one man in particular, a big, robust fellow, who would have no difficulty in being accepted in every other; but if he were to apply, I am sure he would be refused, on account of his defective teeth.

DR. WELLS.—I am sorry I was not here when Dr. Bowers' paper was being read, but I may say I am very well pleased with the movement that has been made. I thought I was alone in this work. I started about four years ago, and now I find that other men have been doing considerable in the movement. About four years ago I went to see the Hon. Dr. Borden, to bring the matter to his attention, but he told me that nothing could be done in the matter just then, that he did not think it was possible. I went home, but have not given up the matter entirely. I had several charts made of the condition of the men's teeth in the army—I think about thirty of them altogether—and I sent them to Dr. Borden, but he said he could not do anything in the matter just then, but that if I agitated the matter he would be willing to give me every assistance. I have had two or three letters from him on the matter.

THE PRESIDENT.—Are there any other gentlemen who would like to take part in the discussion before I put the motion?

There being no further discussion, the President continued. The motion is:

*Resolved*, That the members of the Canadian Dental Association favor the adoption by the Militia Department of provision for a regular army dental staff, which shall be a distinct branch of the service, the members of which shall hold rank as do the general surgeons; and for the attainment of this end that a General Committee be appointed, consisting of two members from



each Province and from the Territories, and where two societies exist in a Province that additional members be appointed, so that every society be represented. This General Committee to appoint a central sub-committee.

"That the nomination of members for this General Committee be left in the hands of the Nominating Committee."

What is your desire in the matter, gentlemen?

The motion carried unanimously.

THE PRESIDENT.—We are now ready for the report of the Nominating Committee, which was appointed at Tuesday morning session.

DR. IVES.—I have much pleasure, gentlemen, in submitting to you the nominations that have been made by the Committee that was appointed, and also to report on the place of the next meeting of this Association. It has been decided that the most convenient and at the same time the most central place that the members could convene would be at Toronto; and it was therefore decided that we would accept the hospitality of the Toronto people for our next gathering. I have pleasure in submitting to you the names of the gentlemen we have nominated, and I ask your sanction. For President we have selected Dr. Willmott; for Vice-President, I may say it was the unanimous opinion of the Nominating Committee that some distinct honor should be paid to the Province of Quebec, in consideration of the arduous labors which they performed in connection with this meeting; and it was also thought that it would be very pleasant and acceptable to all to have a French Vice-President; and we have therefore decided to nominate our good Secretary, Dr. Dubeau, for Vice-President, if he will accept the office. For Secretary, the name of Dr. Cecil Trotter, of Toronto, has been submitted. Feeling that we had need of a very shrewd man, and a very clever man, from what I have seen of him, we felt that we could not fall upon a better man for treasurer than Dr. Godsoe. There now remains the position of Registrar, and we decided that we ought to fill it with somebody who is a very good talker, and who has had a great deal of experience in parliamentary affairs, and who can keep this whole crowd of men going right, and rather force them to go right, if they don't. We nominate for Registrar Dr. McInnis. Then, gentlemen, the constitution says that this body shall nominate three of the Executive Committee. They are as follows: Dr. Cowan, representing the Territories; Dr. Woodbury, representing Nova Scotia; Dr. J. S. Bagnall, representing Prince Edward Island. I would move, gentlemen, that the nominations that have been presented to you be accepted.

DR. WOODBURY.—It affords me much pleasure to second the motion to accept this report. I would like to say, in reference to the nomination for President, that it affords me much gratification to speak for the Maritime men, and the delegation from Nova Scotia. As far as I have seen them, it is the desire that Dr. Willmott, who has always stood as a giant defender of

dental rights, and who has been an earnest promoter of every improvement, and who has endeavored on all possible occasions to advance the dignity of the profession, should be President of this Association; and I have much pleasure in seconding the motion to adopt the report. I am sure we could not have chosen a better man. I will now speak of the Executive Committee. It is a gratification to see that they are so well distributed all over the Dominion, and that with one exception (myself) are men of ability. When asked to second the report I was not aware that my name was on the Executive.

THE PRESIDENT.—Gentlemen, you have heard the report of the Nominating Committee. If there are no more nominations, I will put the question. Carried.

THE CHAIRMAN.—Will you now be good enough to instruct the Secretary to cast one ballot, making the election unanimous.

DR. WEBSTER.—I have pleasure in moving that the Secretary cast one ballot for the whole, and that the election be made unanimous.

DR. NOLIN.—I have much pleasure in seconding Dr. Webster's suggestion. Carried.

THE CHAIRMAN.—I declare these gentlemen formally elected. It has been suggested that our button be registered, so that no one else can adopt it, and then we can have it made in gold; and if we like we can wear it, and any one seeing the button would recognize a confrere at once. If this meets with the approval of the Association, we will do it.

DR. WOODBURY.—I would move, Mr. President, that we adopt this button as our official insignia, and have it registered.

This was seconded by Dr. Willmott, and carried unanimously.

[At a meeting of the Dental Association of Nova Scotia, held soon after the close of the Montreal meeting, Dr. Frank Woodbury was elected as the representative of the association on the proposed Dominion Council, and in consequence resigned his position as a member of the Executive Committee of the Canadian Dental Association. The constitution of the association making no provision for filling vacancies, as president of the association, I have taken the responsibility of appointing to the vacancy Dr. Frank W. Ryan, Halifax, N.S.—J. B. WILLMOTT, President Royal Canadian Dental Association.]

DR. WOODBURY.—I would suggest that the Secretary be instructed to send as soon as possible to the Presidents and Secretaries of the various organizations the resolutions adopted in reference to the Dominion Council, and also the names of the officers who have been elected here, for their information.

THE PRESIDENT.—I think that is a matter of duty of the Secretary.

DR. WOODBURY.—Our annual meeting takes place on Tuesday and Wednesday, and while I am on my feet, I want to extend an invitation to any of the members who are here to come down and visit us next week. It will be a very nice little trip to the



Maritime Provinces. It is a beautiful time of the year. We meet in Truro, next Tuesday and Wednesday, and we shall be delighted, one and all, to have you.

THE PRESIDENT.—Gentlemen, we are indebted to the courtesy of McGill University, and also I should announce to the kindness of Dr. Harrington. I would like you to note that the Redpath Museum has been thrown open in our favor, that the fee for admission has been suspended for the dentists. Now, we are under a great obligation to the authorities of McGill University. They were our hosts, and we are also indebted to the steamship lines and railway companies. It seems to me, gentlemen, it would be a graceful thing for us to pass resolutions of thanks to those gentlemen.

DR. MCINNIS.—I would like to move a resolution to that effect, Mr. Chairman, if it is necessary to embrace it all in one motion.

DR. PRICE.—I will second the motion.

THE PRESIDENT.—It is moved by Dr. McInnis, seconded by Dr. Price, that the Secretary be instructed to send the thanks of the Association to our hosts, the governors and members of McGill University, also to Mr. and Mrs. James Ross, for their kindness in entertaining the members of this Association. Carried unanimously.

DR. MCINNIS.—I have only one word to say. We have all enjoyed, I am sure, meeting here together, and revelling in each other's society, and we are largely indebted to the Quebec Dental Association, which has conducted all the arrangements. It is through them that we have the use of the building, and they were in charge of the entertainments and other things that we have enjoyed so much during our stay in their city, and I feel, as one from the outlying Provinces, that it is in good part, and the least we can do is to express ourselves, in order that the Quebec Dental Association may have some little idea of the pleasure they have afforded us all. And then there is our worthy President, for he has been our acting president throughout; and our worthy Secretary I feel like particularly mentioning, because during the banquet that we had last night I noticed that the names of many officers were attached to the bill; but I was sorry to see that the names of our President and our Secretary were absent from that card. I regret that very much, and it is only characteristic of the modesty of Dr. Stevenson that he kept himself so much in the background. I therefore move, gentlemen, that a hearty vote of thanks be tendered by this meeting to the Quebec Dental Association and those officers, for the kind manner in which they have conducted this meeting and entertained and assisted us throughout. This motion is seconded by Dr. Willmott. I will put the question myself. Those in favor shall give three cheers for the Quebec Association. The three cheers are heartily given.

DR. MCINNIS (continuing).—Mr. Chairman, the motion was uproariously carried.

THE PRESIDENT.—Gentlemen, on behalf of my confreres of the Quebec Dental Association, I sincerely thank you for the most generous vote of thanks you have tendered us; we have been more than repaid. The great enjoyment which we have had has more than repaid us for any trouble which we have taken; and we feel that the result of this meeting will be a step in advance which will give the whole dental profession in Canada a push in the right direction. I thank you, in my own name, and in the name of the Association. Now, I have in my hand a list from the Nominating Committee with reference to the motion of Dr. Bower, in connection with the appointing of dentists to the army. The nominations are: For Ontario, Dr. Wilkinson and Dr. Bower; Quebec, Dr. Wells, of Quebec, and Dr. McKenna, of Montreal; North-West Territories, Dr. A. E. Jameson, of Edmonton, and Dr. L. D. Keown, of Moosomin; New Brunswick, Dr. C. A. Murray, of Moncton; Nova Scotia, Dr. Fluck and Dr. Woodbury, of Halifax. We have no nominations for Prince Edward Island. We did not know who they were, and we could not run across Dr. Bagnall, so that the representatives for Prince Edward Island will not be nominated, for the time being.

DR. MCINNIS.—Manitoba is not mentioned, Mr. President; I would suggest the names of Dr. Clint and Dr. C. G. Matheson.

DR. WILLMOTT.—Why not add Dr. Bagnall,

DR. MCINNIS.—Do I understand that there are two members from each Province?

THE CHAIRMAN.—Yes; and they are to appoint a sub-committee.

DR. ———.—Might I ask why there are not two from Nova Scotia?

DR. IVES.—There was only one that we could think of; there might be some gentleman here who could suggest some other names; but there was only one name suggested, and we did not know whom to nominate. I think there is one thing that we have overlooked, and that is the extreme generosity and kindness of Dr. Webster and his staff, the DOMINION DENTAL JOURNAL, in publishing and printing and general work that they have done for this Association for this meeting. I think it would be a most graceful thing on our part to extend our most heartfelt thanks to Dr. Webster, for his many kindnesses, and I therefore propose a vote of thanks to Dr. Webster.

DR. WOODBURY.—I have much pleasure in seconding Dr. Ives' motion. Such generosity and magnanimity ought to be encouraged. If I am correctly informed, it is the intention to present a copy of the report to every member of the Association. I think this is a splendid idea, and I have much pleasure in seconding the motion.

THE CHAIRMAN.—It is moved and seconded that we tender our hearty thanks to Dr. Webster and the staff of the DOMINION DENTAL JOURNAL for the help they have given us during this



meeting, and for the several kindnesses they have extended to us. The motion carried unanimously.

DR. J. B. WILLMOTT.—Gentlemen, before the meeting breaks up, I think there is one other matter to which attention should be called. We have with us three very prominent members of the profession, who have kindly visited us on this occasion, and have added very materially to the interest and profit of our proceedings. It is not an unusual thing, it is a habit among our American friends, when they are invited, they come and give us whatever they can, the benefit of their experience and their knowledge—they are willing to put themselves at our disposal for that purpose; they are so much in love with their profession that they are ever ready to put themselves to inconvenience, and not infrequently to very considerable expense, to further the interests of dentistry. I therefore have much pleasure in moving that a cordial vote of thanks be tendered to Drs. Johnson, Ottolengui, and Price for their presence and for their assistance at the meeting. This motion was seconded, and carried amidst cheers and the singing of "For they are jolly good fellows."

The meeting thereafter adjourned.

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### ELGIN DENTAL SOCIETY.

The regular meeting of the Elgin Dental Society was held February 17th, 1903, in the office of Dr. Bartlett. There was a very large turnout, and the meeting proved to be one of the best ever held. Dr. Way gave a very thoughtfully prepared paper on "Insulating Fillings." Dr. Teetzel gave a brief report on the Ontario Dental Society Convention, held last week in Toronto. At the conclusion a dainty lunch was served, for which a hearty vote of thanks was tendered to Dr. Bartlett.

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### ROYAL DENTAL SOCIETY.

The regular meeting of the Royal Dental Society was held in the College Building, on the evening of Tuesday, February 3rd. Considering the number of students present and the interest they displayed as the various numbers of the programme were rendered, the results must be called gratifying. While it is true that considerable consideration was given to subjects of a purely professional character, yet the esthetic part of a student's nature was not at all neglected, as will be seen by looking at the programme. Dr. Bruce was present, and very ably demonstrated the use of the Hurd apparatus for nitrous oxide anesthesia, removing the pulps of two superior centrals with its aid. The programme was as follows: Piano duet, Messrs. Carmen and Gummer; vocal, Mr. Fred. Phillips; paper, "Literary Culture in the Life of a Dental Surgeon," Mr. M. P. Cor-

rigan; R.C.D.S. Banjo and Mandolin Club; sword v. bayonet, Messrs. Wood and Biggs; clinic, "Hurd Apparatus for Nitrous Oxide," Dr. Bruce; paper, "Alveolar Abscesses," Mr. G. A. Fraser; quartette, Messrs. Harwood, Wessels, Doherty and Jackson; bayonet contest, Messrs. Wood and Biggs.

### HUBBARD CUP.

Regulations and terms of gift of the "Hubbard Cup" presented to the students of the Royal College of Dental Surgeons of Ontario, by the C. H. Hubbard Company, Limited, Toronto:

1. The cup shall be called the "Hubbard Cup."
2. It shall be played for under the rules of the game of the Intercollegiate Union.
3. It shall be played for annually, and shall be open for competition only to the several classes or years of the said Dental College, *i.e.*, for annual inter-year competition only.
4. No player shall play for the cup who is not a bona fide student in actual attendance at lectures.
5. No player who is not an amateur in good standing shall play for the cup. The definition of an amateur as laid down by the Canadian Amateur Athletic Union to govern. All questions of the amateur standing of any competitor to be decided by the Canadian Amateur Athletic Union.
6. The Dean of the College shall to all intents and purposes be the legal holder of the cup in trust for the students.

Signed on behalf of the Royal College of Dental Surgeons of Ontario.

(Sgd.) J. B. WILLMOTT, Dean.

Signed on behalf of the C. H. Hubbard Company, Limited, Toronto.

(Sgd.) BEATTIE NESBITT, President.

December 4th, 1902.

#### *Rules Governing Competition for the "Hubbard Cup."*

(a) Matches shall be arranged under the direction of the Hockey Committee of the College, and played until one class is declared the winner.

(b) The class winning the final match to hold the Cup and the championship of the College.

(c) The Hockey Committee of the College shall fix the date within which matches shall be played.

(d) Any class refusing or failing to play (within the stated time) the class against which it is matched shall be considered to have lost the tie.

(e) In the event of two competing classes failing to agree upon a referee, the decision to rest with the Hockey Committee of the College.

(f) All matches shall be played on suitable ice of reasonable dimensions, free from obstructions, and sides and ends properly boarded.



## Review

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*Dental Materia Medica, Therapeutics and Prescription Writing.* By ELI. H. LONG, M.D., Professor of Dental Materia Medica and Therapeutics in the Dental Department, University of Buffalo; Professor of Materia Medica and Therapeutics in Medical Department, University of Buffalo; Assistant Attendant Physician to Buffalo General Hospital. Illustrated with six engravings and eighteen colored diagrams. Philadelphia and New York: Lea Brothers & Co.

The author's conception of what is needed in a dental materia medica to-day is: (1) "To treat fully all remedies that belong properly to the special field of dental medicine; (2) to discuss briefly the action and application of the most important of the general remedies, emphasizing those whose action may avail in dental diseases, and emergencies, and (3) to furnish matter for reference that will cover all ordinary demands of the dental student and practitioner, as to general remedies, their preparation, doses and uses." It is doubtful if the well-educated dental practitioner will agree that this book fulfils the first conception of the author. All the remedies may be treated, but not fully by any means. As a materia medica it may be all right, but as for the dental use of drugs, it is not up to the mark, e.g., notwithstanding the exact definite knowledge we have of the essential oils, and a definite knowledge of where each is indicated, the whole subject is covered in less than three pages in a dental materia medica of over three hundred pages. Here is the author's conception of a full treatment of oil of cloves: "Oleum caryophylli (oil of cloves), distilled from cloves, varying in color from pale yellow to brown, age and exposure producing the change. It has the odor and taste of cloves, is soluble in one part of alcohol, the resulting solution having a slight acid reaction. It consists chiefly of an oxygenated oil (eugenol), which has combining properties. In addition to its dental uses, oil of cloves is employed in the preparation of microscopic specimens." There is nothing in the above about the dental uses. It is taken for granted that the student knows all about when, where and how to use the drug. The therapeutics of bleaching agents is covered in a four-page copy from Dr. Kirk. The first conception of the author cannot be substantiated from this book, when it is compared with what is known on the subject. If any drug should be well understood, it is oil of cloves. The second conception of the author is well maintained, and so also is the third. Although brief and incomplete in dental therapeutics, there are many very commendable features about the book. The idea of introducing a diagram of the nervous system to illustrate the physiological action of

drugs is an excellent one. The reviewer has not seen before any method of impressing such important facts about a drug that is the equal of this illustration. The chapter on anesthetics is good. This chapter contains much valuable matter, and should be read carefully by every dentist who uses anesthetics. The chapter on prescription writing is a timely subject to introduce to the dental profession. The index of drugs which contains the cardinal points on nearly all the drugs known is a very valuable portion of the book. It takes the place of a large book of reference, and is full enough to give a fair idea of the drug. The dental profession has felt the need of a work on this subject for years. There have been attempts at producing a text-book, but these have not come to the hand of the reviewer. This work has many features which make it essential to a dentist's library. The matter is well and conveniently arranged for reference. It is clearly written, and shows that the author has a grasp of the general subject of *materia medica*.

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### Correspondence

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*To the Editor of DOMINION DENTAL JOURNAL :*

*Dear Editor,*—Nearly every one of our depots address us thus :

DR. J. W. BLACK (or whatever the name may be),  
DENTSVILLE,

DENTIST.

ONT.

They seem to think they have to offer some apology to the public for addressing us as "Dr.," and so stick the word "Dentist" over in the lower left-hand corner of the envelope. Tell the "guys" to cut it out. One dental depot in Canada has a member of its staff who addresses nearly all parcels as follows :

DR. J. W. BLACK,

4th Class

DENTSVILLE,

DENTIST.

ONT.

It flatters us, I assure you. They make the "4th Class" appear as if referring to the word "Dentist," instead of to the parcel.

Sincerely yours,

A SUFFERER.



# Dominion Dental Journal

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No. 3.

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## A FEW SUGGESTIONS FOR THE CONSIDERATION OF THE BOARD OF DIRECTORS OF THE R.C.D.S.

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The first meeting of the new Board of Directors of the Royal College of Dental Surgeons will be held in April. The election in December last provided a board composed of the following gentlemen: G. E. Hanna, A. M. Clark, J. B. Willmott, H. R. Abbott, J. Frank Adams, R. B. Burt, M. F. Cross, Charles Biehn. The last three named take the places of C. E. Klotz, J. A. Marshall and W. A. Brownlee. Thus there are three new members on a board of eight. With this new blood there must be new ideas, which, when brought before the older and more experienced members, ought to result in wise legislation. So that the board may not want for something to do, we suggest a few subjects for discussion.

At the present time the profession owes in arrears of fees over two thousand five hundred dollars. The annual expenses for enforcing the Dental Act alone is greater by hundreds of

dollars than the amount of the fees paid, not to mention the other legitimate expenses of the board outside of that pertaining to the college. The fact is, the major portion of the expense money of the board is taken from the fees of the students. It surely cannot be right to collect money from students, which they pay for their education, to prosecute illegal practitioners; nor is it right for one man to have all the benefits of the Dental Act and its maintenance without contributing one dollar towards it, while his neighbor pays for the same. No further argument is necessary, we hope, to make it clear that the arrears of fees should be at once collected.

Next, there should be some provision made that such an amount of arrears shall never occur again. And for reasons that are clear to the majority of the Board, and very clear to the writer, fees paid after the 1st of November in the year in which an election is held should not qualify the elector to vote. Only those whose fees are paid before the 1st of November, as specified in the Act, should be qualified to vote. The by-law allowing electors to qualify after this date should be at once repealed. We trust that it may never be necessary to state publicly to the profession the reasons why this change is imperative. We suggest that the board make the fee three dollars instead of one, and that a discount of two dollars be granted to all those who pay before November 1st in each year. Thus, to those who pay regularly the fee will be the same as it now is and to all those who do not the arrears will soon amount to a sum which will pay for its collection in the courts. Again we say, no qualification to vote after the first of November.

The Act Respecting Dentistry, section 17, says: "The board shall from time to time make such rules, regulations and by-laws as may be necessary for the proper and better guidance, government, discipline and regulation of the board, and the profession of dentistry, and the carrying out of this Act." It would seem that the board has power to pass a by-law to discipline the profession. What is meant by "discipline the profession?" It surely means that those who conduct themselves or their practices in a manner unbecoming of the profession may be punished. Would it not be wise for the board to look into this matter; the power is given them to take action. Not wishing to take the responsibility, why not try to influence the University of Toronto to cancel the degrees of those who do not live up to professional ideas? No graduate of Trinity University can be



guilty of unprofessional conduct without running the risk of losing his degree. The Legislature has given us self-government; is it not about time to exercise it, as is done in Law and Medicine?

The Board of Directors represent the whole profession of Ontario, and in that capacity should undertake more than merely the direction of the college and the prosecution of illegal practitioners. The well-being of the profession should be considered in its broadest sense. The board should undertake and carry out everything that will tend to place the profession in a better light before the public. It should not be necessary for the provincial society, local societies, or individuals to spend their time and money in such work. Theirs is professional work only. The board's is legislative and executive, and what is more, they represent the whole profession, while societies and individuals do not, and besides, the profession is willing to pay them for their duties. The board is the official body of the profession, and will always have more influence with the public. Believing that these propositions are true, we suggest that the following subjects engage the attention of the board. We have not the time just now to give arguments in each case, to show why they should be considered. Suffice it to say that one or another of the societies of Ontario has seen fit to give them some attention. A dental corps should be organized for the militia of Canada. There are already several voluntary committees formed, from various societies, to assist in presenting the importance of the matter before the Department of Militia; but there are no funds, nor any means of getting them, to do a work that is doubtless a benefit to the whole profession, and should be assisted by the whole profession.

The Massachusetts Legislature has introduced a bill to provide for compulsory examination of school children's teeth. The Ontario Legislature has refused to allow school trustees to provide for such a examination, without making it compulsory at all. The work of presenting this matter before the Legislature and paying for it was done by private individuals, when it should have been done officially by the board. All such work is clearly within the board's province.

The inmates of provincial institutions, such as boys' and girls' homes or reformatories, schools for the deaf, dumb, and blind, houses of correction and asylums for the insane, should have their teeth looked after by dentists appointed and paid for

by the Government. Whose duty is it to look into this matter, and have it done, if not the board's? What corresponds to our board in New York State has looked after this matter until every state institution needing a dentist has one on its staff.

Dr. McElhinney, of Ottawa, in an article read before the Eastern Ontario Dental Association, and published in the February number of the DOMINION DENTAL JOURNAL, 1902, gave an outline of a plan to educate the public to an appreciation of their teeth. He suggested that the board should undertake this work. Why not?

Just as a reminder, the Journal for the third time calls attention to the necessity of now collecting whatever available data can be secured of the early history of dentistry in Ontario. The men who know such history will neither remember always nor live always. The board should pay some one to do this work, as it is of interest to the whole profession.

The board should send out to the provincial press and to the public school teachers, and especially to physicians, bulletins containing instructions on how to care for the teeth, and, above all, on what can be done by dentistry, and point out what is honest dentistry, and what is dishonest dentistry. Such bulletins would not only educate the public as to how to care for their teeth, and what to expect from a dentist, but would also make the way of the dishonest dentist very hard. The Agricultural College at Guelph sends out thousands of bulletins on topics pertaining to the instruction of the public in their particular department of education. Is there any good reason why the board should not have a number of such essays written and sent out all over the province? If every child in the public schools of Ontario had a bulletin on the care of the teeth sent to his post-office address, he would read it, and what is more, he would remember what it said. If good, sound instruction were so given the charlatan who occasionally gets into dentistry would be identified by the public. The public is craving for such instruction, and who should provide it for them if not the board?

Just a few points without comment. There is room in the college for a museum. Such a valuable adjunct to dental instruction should be provided for. Make a start.

One member of the Executive Committee of the Canadian Dental Association should be appointed at this meeting, as is provided for in the constitution of that organization.

There should be a further consideration of what was merely



mentioned at Montreal last autumn in reference to an interchange of students or graduates with Nova Scotia, also a further consideration of Dominion registration.

We venture to say that the profession would more willingly pay their fees if they knew that the money was being expended in some of the ways here suggested. And also that at least two thousand dollars of the two thousand five hundred dollars of arrears of fees would be very easily collected if every man knew that the money was to be expended in a way that he could see it done without coming to Toronto.

While it may seem a little presumptuous to some of the members of the board for the Journal to make suggestions, it really cannot be considered as such, because these are subjects which are coming under the notice of the editor from various sources, and different parts of the province, and which do not reach the board at all. Only the more prominent and persistent suggestions are noticed.

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### THE ODONTOGRAPHIC SOCIETY OF CHICAGO.

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The Odontographic Society of Chicago held its fifteenth annual clinic in the North-Western University Dental School, February 16th, 17th, and 18th, 1903. It will go down in history as the largest congregation of dentists up to that date. It is said fully two thousand five hundred were in attendance. Chicago is the proper place to hold a large dental meeting. It is in the centre, perhaps, of the largest dental population in the world. All the leading railways of North America have communication with Chicago. There are three well-equipped and well-governed dental schools, with a student population of twelve or fourteen hundred. The profession has caught the spirit of the West in ambition, progress and culture. There is no other body of professional men doing as much for the advancement of dental science as those in and about Chicago. There is no other body of men doing so much for dentistry socially. And there is no other dental society with the membership, the vigor, and the progress of the Odontographic Society of Chicago. What other dental society of fifteen years' standing can boast of a membership of over four hundred, or of having had two thousand five hundred dentists at its annual meeting? No dentist ever visited Chicago that did not get a hearty welcome

by his professional brethren. The dentists of Chicago can boast of having more professional friends than any other city in America. There are larger cities, and cities with more dentists, but who ever heard of their making any effort to welcome or entertain the lowly or the multitude in the profession? It is only in the West where the ideas widen with the extent of the country. It does the Eastern man good to associate with the liberal, bright, genial man of the West.

Canada was complimented in having one of the six essayists, five of the clinicians, and the toast of honor at the banquet. It made every Canadian's blood warm with delight when the seven hundred and fifty guests at the banquet rose and sang as with one voice, "God Save the King," as Dr. J. B. Willmott rose to speak to the toast of "Professional Unity." Behind him were the Union Jack and the Stars and Stripes. This was the greatest compliment ever paid the Canadian profession by a foreign country. The Canadians present at the meeting were Drs. J. B. Willmott, G. S. Caesar, C. V. Snelgrove, A. W. Thornton, Oliver Martin, J. T. Coglin, C. Ross, J. F. Ross, S. Moyer, J. Mills, A. E. Webster, C. E. Pearson, Harold Clark, F. J. Capon, F. Mallory, F. McInnis.

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### A PLEA FOR MORE GENERAL KNOWLEDGE OF DENTAL TEXT-BOOKS.

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Why don't dentists read books on dentistry? Is it because to do so would be an admission that they do not know all about dentistry. We've heard that there are dentists who pretend to their patients that they know it all, and that there are others who do not. Admitting that dentists know it all (we presume that dental students have no such notions), why don't dental students read books on dentistry, or even dental journals? What is the use of demanding a matriculation that requires the student to know how to read if he will never need it after he begins the study of dentistry? We admit that it is convenient to know how to read a daily paper, but it seems wholly unnecessary for a dentist to know how to read a scientific work. Are dentists and dental students not far enough along in mental training to be able to gather information from books, or must they be shown everything before they can understand it?



Most dental students, when they go to college, buy an anatomy (usually second-hand), some buy a physiology; usually they bring with them the chemistry they used in High School. This is the sum total of the dental library some students have; and they sell it all out to the janitor when they leave college. These books (nor any other, for that matter) do not contain anything essential to a dentist in general practice. Ask a student if he has a work on dental chemistry, materia medica, orthodontia, dental pathology, metallurgy, bacteriology, or even operative dentistry, or ask him if he has read some article in a recent dental journal (which is given him free of charge), and he just smiles at you, as if to say, "Don't jolly me." If most dentists were asked if they had any of the above books of a recent edition, they would say, "I cannot fill teeth with books."

The dental book business in Canada would never make anyone rich. There is only one book store in Toronto that keeps dental books, and they haven't twenty-five volumes all told. There are three or four medical book stores with thousands of volumes on their shelves. It is true there are approximately six hundred medical students to two hundred dentals, and more medical books written than dental, but the dental book is just as essential to the dental as the medical book is to the medical student, and there should not be a difference of thousands in the number kept. New books are not needed, because students sell out the few books they have when they change classes or graduate. They go out to practice, believing they know all that dental books can teach them. The one hopeful feature is that there are so many dental journals, and that they are so widely read. Medical journals are not nearly so well read by the medical profession as dental journals are by the dental profession. Books in medicine and surgery are better written than books on dentistry, which may in a measure account for the marked difference in the number read. But if the dentists would read more books, they would create a demand, and better books would be written, and the profession would be largely the gainer.

## Editorial Notes

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DR. R. ALEXANDER, R.C.D.S., 1902, Sault Ste. Marie, died March 6th.

ALL those who correspond with dentists should read a letter in this issue from "A Sufferer."

THE JOURNAL acknowledges an invitation to attend a dinner given by the Canadian Camp-Fire Club of New York, of which Dr. Lenox Curtis is president.

IMPROVED.—The appellation "Doc" is not so frequently heard at association meetings now. It is a good riddance. The *Western Dental Journal* is proud of its fight against this beastly name.

To prevent gold foil or pellets when being cut from adhering to shears, have sharp, smooth edge on shears, wipe clean before using, and draw the edges of the blades lightly across the finger.—R. E. SPARKS, Kingston, Ont.

DR. A. W. HARLAN and Dr. T. W. Brophy, of Chicago, will, upon the recommendation of Senator Cullom, represent the United States at the fourteenth annual international medical conference, to be held at Madrid next April.

THERE are two ways of getting to the head of any calling, one is by knocking all the rest down, and then be the cock of the ruin; the other is to help others and thereby help yourself to climb to the top and be the cock of a fine structure.

WE are very glad to notice that Mr. James Smith Turner, of London, Eng., has pointed out in the February issue of the *Journal of the British Dental Association* that it is not professional to publish cuts of operations and operators, as advertisements for dental or medical colleges.

FILL THE JOINTS WITH GOLD.—If you are troubled with dark joints in using gum sections, grind a V-shaped space extending two-thirds across the joint, and, after investing, fill the space with a rope of gold-foil. After trying this, you will discard all other methods.—*Western Dental Journal*.

ANY old rubber, good, bad or indifferent, though we can't appreciate why anyone should use any but the best, should be vulcanized at a lower temperature than 320 deg., and a longer



time than one hour. One hour and a half at 310 deg., or, still better, three hours at 290 deg., makes a wonderful addition to strength and durability.—*Western Dental Journal*.

MISUNDERSTOOD.—If no one understands you, and you are soulful and bilious, and hate yourself, and despise the world, and want to screech, and be sentimental and foolish, and so on, don't be a Mary MacLane and write it. Hunt up a condemned man and tell him all about it; but be absolutely certain that he is going to be hanged early next morning.—*From Puck*.

To facilitate the passage of rubber dam between teeth, when the latter are close together: When ready to adjust, smear a little glycerine over the holes, on the side of dam to pass over the teeth. This answers instead of soap, recommended for the purpose, and is much less objectionable to the taste if it should come in contact with the patient's tongue.—R. E. SPARKS, Kingston, Ont.

VERY often the medical profession is referred to as the "Doctors." Are there no other doctors? What of the Ph.D.'s, LL.D.'s, D.D.'s, D.D.S.'s? Are the holders of such degrees not as much entitled to be called the doctors as the M.D.'s? Dentists often say, "I called in a doctor in consultation." Which variety of doctor is meant, a clergyman, a dentist, or a physician? When physician is meant, say physician; when surgeon is meant, say surgeon; or when clergyman is meant, say clergyman, and then, when addressing the person, call him *doctor*.

THE BEST ROOT FILLING.—The following extract from an editorial upon the subject is from an editorial in the *Western Dental Journal* for 1890, and it is still our belief: "Our well-known preference is for gutta-percha at the foramen and oxychloride for the balance of the canal. By this method we avoid the objectionable features of both materials when used separately, viz., the leakage in gutta-percha, and the forcing of oxychloride through the foramen. Used in this way we have recommended, these materials logically and practically combine more of the qualities of an ideal root filling than can be obtained with any of the other materials commonly used."

At dental meetings there are always some people who have nothing of value to say, but who feel compelled to wander over some beaten track, saying what everybody knows from the time he left the swaddling clothes of dentistry, and he usually does this with an air that he is relating something new, and calls it "my method." He forgets he is not talking to the freshman class in a dental college instead of practitioners. He is bore No.

1 at dental meetings. Bore No. 2 is the man who jumps up when anything really original is brought forward, and describes how he did exactly that way as far back as the fifties. Nothing can get ahead of this Bore No. 2. Bore No. 3 is the man who wants to adjourn when the discussion is at its most interesting point. He seems afraid that something good is coming out. His sonorous "I move we adjourn" is heard at all dental meetings, and he ought to be muzzled.—*Western Dental Journal*.

FILLING SMALL ROUND CAVITIES WITH GOLD.—Take a third sheet of No. 5 non-cohesive gold foil, folded into a very narrow ribbon, and insert one end into the cavity. With a hand-pressure plugger catch the ribbon far enough from the end just introduced to form a fold long enough to reach to the bottom of the cavity, while the loop of the fold extends slightly beyond the orifice. Continue this process until the cavity is a little more than full. Then condense and finish as in any ordinary case. If the cavity be extraordinarily deep for its size, fill to, say, one-half its depth and condense. Use this as the floor of the cavity, and proceed as above described. Non-cohesive gold spreads upon pressure, and accommodates itself to the size and shape of the cavity without balling, as is the case with cohesive. Besides, such a cavity may be filled in much less time with the former than with the latter.—R. E. SPARKS, Kingston, Ontario.



# Dominion Dental Journal

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## Original Communications

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### RETIRING PRESIDENT'S ADDRESS.

BY S. MOYER, D.D.S., GALT, ONT.

Delivered before the Ontario Dental Society, Feb. 11th, 1903.

*To the Members of the Ontario Dental Society:*

GENTLEMEN,—In accepting the position of president of this society, I am especially conscious of two feelings that seem to be alternately striving for supremacy. The first is one of thankfulness to you all for so distinguished a mark of your favor; the second, an ardent desire to maintain the efficiency and dignity of this chair. The measure of my success in this rests in a measure upon your individual assistance. !

Another year of labor, another year of study, another year of trials, of failures, and of successes, has passed into history. Another year of added experience, and we have met to talk it over, to compare notes, to give and to get information. We have met to have fallacies corrected, truths compared, new thoughts criticized and crystallized. Again we will rub off the rust that has been accumulating for a twelvemonth, and then return to our patients with, we trust, new thoughts, new ambitions, and new ideals.

Never before in the history of dentistry in this province has there been such a seeking after knowledge. The trend is educationward, with all of education's beneficent and refining influences. Ten pages of dental literature are read to-day, I believe, to every one that was read a decade ago. Our DOMINION DENTAL JOURNAL, of which we are becoming prouder and prouder, is like an over-grown school boy, almost monthly growing too big for its clothes, and evidently the editor can scarce find room for all of the manuscript that our dentists are supplying him with.

New dental societies, the most influential factors in all professional education, have sprung up in all of the points of the compass. These embody all that is best in the profession, and in professional life. There is nothing more inspiring, nothing

more hopeful in our profession, than this increase in the number of our societies, with the constantly increasing number of their active members. Let this education continue, and rapidly will we attain toward the full stature of our professional manhood. Let this education continue, and soon, very soon, will men need to frame codes of ethics no more. Our professional and social destiny rests with ourselves.

“The tissues of the life to be  
We weave in colors all our own.”

Only to the extent to which we succeed in perfecting our skill and ability in our many operations, to the extent to which we can scientifically and skilfully diagnose and treat the many pathological conditions of the oral tissues, and last, but not least, to the extent to which we can succeed by original investigation and scientific research in solving those pathological and histological problems, those bacteriological and embryological secrets, only to that extent can we, as a profession, hope to attain to and secure a prominent position side by side with the older professions. Ours has been called a “narrow professionalism.” Let us add to it a greater dignity by a more liberal education, by digging deeper into these mines of hidden secrets.

Our social destiny, too, is a matter of education. “Ignorance is a most fruitful source of popular disesteem.” You cannot argue yourself into professional recognition, nor into public or social favor.

“’Tis worth makes the man  
And want of it the fellow.”

And the public in its estimates makes few mistakes. In the matter of education I am proud of our Ontario dentists. Our matriculation, our course of study, our theoretical examinations are the most comprehensive as well as the most exacting in the world to-day. But in original investigation we have, up to the present, little or nothing to show. Cannot something be done to encourage and aid in this matter? Surely we can afford to maintain a room in our college especially set apart for that purpose, and then to give such financial assistance as may induce at least some to undertake research inquiry. This would appeal in an especial manner to our recent graduates; men unbiased and in a measure unhampered by business. They might be thus encouraged to continue this work, which should be begun in the college,—and which would thus tend toward the culmination of scientific genius.

The college is ours, and we are proud of it—you have bricks in these stately walls, and so have I. The men who planned this college, like those who drafted our Dental Law, “builded better than they knew.” And they are still building. Soon there will be room for other chairs. The horizon of our intelli-



gence is widening, and the circle of ignorance surrounding it ever widening.

I welcome the advent of a four-year course. 'Tis all too short. There is so much to learn, and there are still so many pathological problems to solve, among them, prophylaxis, with its bearing upon the etiology of caries; pyorrhea alveolaris, its cause and cure; immune areas and their relation to "extension for prevention;" the relation of tooth structure to its liability to caries; the etiology of erosion; influence of the saliva upon the teeth; the influence of the nervous system upon the saliva, and its relation to caries, etc., etc.

The future of dentistry has a roseate hue. This more liberal education is of paramount importance. It will add brains and skill to our fingers, judgment in diagnosis, and sympathy and refinement to all we say and do. The necessity for good dentistry is rapidly growing. Only 5 per cent. of the people of the United States, it is said, have their teeth attended to, while the liability of teeth to caries is increasing alarmingly.

What can we do to advance, to keep pace with our art? We can, as individuals, strive for greater perfection in our every-day work, and we can more carefully elaborate details. By clinging to the old and welcoming the new, by constant judicious reading, by investigation, consideration, and discussion, we will be able to rise from our present selves to greater service and usefulness. As a society, as dentists of Ontario, we are trying to join hands with the other provinces of the Dominion in the formation of a Dominion dental council, and I believe and hope that after one or two more meetings of the Canadian Dental Association, all will have so far overcome selfishness, prejudice and fancied danger as that there will be but one desire among Canadian dentists from the Atlantic to the Pacific.

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### A PECULIAR CASE.

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BY HUBERT A. CROLL, M.D.S., SOURIS, MAN.

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A lady, aged 45, called to have a right upper lateral incisor extracted. The crown was considerably decayed, and there was an abscessed condition present at the apex of the root. Upon the removal of the tooth, the writer noticed a fine dark foreign substance protruding from the foramen, and upon closer examination, after extracting it with a pair of pliers, discovered to his surprise that it was a hair, somewhat resembling an eye-lash, the root having been in the pulp canal, and the point protruding.

Would it be possible for a germ of a hair follicle to have migrated into the pulp previous to the development of the tooth, after the manner of the formation of a dermoid cyst?

## WORDS IMPROPERLY USED BY DENTISTS CONSIDERED FROM AN ETHICAL POINT OF VIEW.

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BY W. C. GOWAN, D.D.S.

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Read before the Ontario Dental Society, February 11th, 1903.

*Mr. President and Gentlemen of the Ontario Dental Society,—* It gives me pleasure to address you on this occasion. To deal with professional ethics at your request is an honor I appreciate, yet I shall not attempt exhaustive treatment of the subject, but rather present for your consideration a few matters of ethical importance which, I think, have hitherto been neglected in the deliberations of this society. I refer to the words and phrases improperly used in the professional conversation of dentists, and the evil results of their use; the boasting of money made, of long hours spent in office work, and of things done in practice, which are not to our credit or worthy of our pride. I would remind some of our brethren that the differences between an ethical dentist and a quack are marked by signs other than newspaper advertising, and that these signs are seen even by people who are not dentists. I would suggest that we cease to give names to our operations in the hearing of patients, as, to them, names are, in my opinion, not only unnecessary, but also harmful. Names, especially short and bad names, are the support of the quack, and the basis of unprofessional competition and advertising.

My purpose is not to criticize merely, but rather to help in advancing the dignity, honor and usefulness of the dental profession, by correcting the faults in language and the unprofessional methods that injure us in the estimation of educated people, and mislead instead of instructing the public, in important matters of dentistry.

I believe all dentists distinguished for education are agreed in the premises that dentistry is a learned profession, and not a trade. To justify public agreement in this conclusion, we must speak as professional men and not as tradesmen. We must remember that a dentist deals with conditions and persons, and not with things, and succeeds by the use of highly specialized knowledge and skill, and not by the sale of goods. That his work is as honorable and as worthy of respect as that of any other profession should be manifest to all by his dealings, attitude, and words. The amount of his fee varies as his education, position, reputation, and circumstances, and should be proportional to the difficulty, danger, extent, importance, and success of his operation, and this all patients should be made to understand.

Since the character of dentists as a class is judged by the words and actions of the individual dentist, let us avoid a misuse



of words, excusable only in the illiterate, for we are estimated professionally and socially by the evidence of culture, or the lack of culture which our actions and words present, and no claim or argument will alter this evidence. What we do and say to patients is public instruction in dentistry, and upon that instruction our welfare largely depends. That the aim and moral duty of a dentist is to prevent or relieve suffering, pain, injury, disease, or loss of the organs committed to his care, and that his ability to do this depends upon his education, should be made clear to every patient and the general public; and also that he has no merchandise to sell, does not "oppose" his fellow practitioners, nor so speak of his work to patients that they may regard him as a mere maker and seller of fillings and artificial substitutes for teeth. If these propositions are true, then what view of the dignity and character of his calling, what taste, education, or common sense, does a dentist display in using the words, "Price," "opposition," "customer," "business," "guarantee," "patronage," "contract," "order," "bargain," "job," "trade," "prices for fillings," "plates," "crowns," etc., "cut prices," "quote prices"? Let us examine these words singly, and their meaning to the mind of a patient or the public.

*Price.*—Price is used in commerce or trade in reference to things bought or sold, merchandise, property, stocks, bonds, securities, etc., and has no place in conversation between dentist and patient. Fillings, artificial crowns, dentures, etc., are not things for sale or at a price. They are merely accessories used in the exercise of a dentist's professional judgment and skill for the benefit of his patient, for which his reward in money is a "fee."

*Opposition.*—The use of this word, instead of fellow-practitioner or confrere, is most objectionable, and impairs public respect for us. Even tradesmen refuse to use it in reference to their competitors. We oppose only that which is wrong or bad, or undesirable.

*Customer.*—We have no customers.

*Business* is a broad general term covering any kind of work, transaction, occupation, or duty. It should not be used instead of the word "practice." The business of a dentist is to learn, practise and teach dentistry, and be otherwise a good citizen. His daily work is his practice. It is also the business of a dentist to take heed how he represents dentistry to the laity. Whether as a trade in which quacks can compete, or as a profession in which they cannot serve.

*Guarantee—Contract.*—These words have a legal significance and apply properly to transactions which involve materials, labor, and things that are quite within the control of the parties interested, or between persons, as the marriage contract, or guarantee of wages. These also are within the control of the persons who make them. But a dentist cannot judiciously guarantee any-

thing he does, except it be that a tooth extracted will not return to its place in the denture; and if he enter into a contract, after the manner of tradesmen, he not only exposes himself to unpleasant liabilities legally, but he also takes chances against conditions he may be unable to foresee, and persons he may be unable to control. Besides, a court will hold him to a guarantee or contract, however injudiciously made.

*Patron—Patronize—Patronage.*—Don't use these words, unless you expect people to seek your services, not because they need or desire them, but only to give you encouragement, countenance, or money. A patient should be presumed to consult her own interests in her choice of a dentist.

*Order.*—Since we perceive by means of highly specialized knowledge the needs of our patients, it follows that our judgment in most, if not all, cases, should prevail. Hence, to obey or permit orders from patients, generally, is absurd and wrong. It may sometimes be unlawful also.

*Trade.*—To use this word in reference to our practice is to deny all the propositions before set forth. He who uses it denies his professional status and dignity altogether, and teaches the public to do the same. The attempt to make dentistry a trade is quackery or folly.

*Job* means "a petty piece of work undertaken for a specified price." Job is worse than trade. Job suggests, "To half-soleing shoe, 50 cents." "To hair cut, 15 cents." "To hinge on gate, 30 cents."

*Bargain* has no place in our vocabulary. If for the sake of charity, or for any other reason, you are willing to accept less than a sufficient fee, let it be so understood, that you may have the patient's gratitude. Don't say bargain, unless you want the public to think you a common trader who sells things.

*Prices for Fillings, Etc.—Cut Prices—Quote Prices.*—This phraseology is wholly wrong in principle, word, and idea, damaging to ourselves, and misleading to the public. Nor is it bettered by substituting fee for price, for cavities so differ in position, extent, difficulty, complication, and expense of time, energy, and skill in dealing with them that we could not quote a just scale of fees for "filling" them, even if we should choose to ignore the principle that we charge for professional services and not for fillings. To base our charge on time only, is no better. To charge for the operation as a professional service rendered is our only proper course, whatever the amount may be. It is therefore clear that he who practises dentistry professionally can quote neither prices nor fees, no more than can the physician. Each practitioner expresses the value of his services by the fees charged, and whoever charges less than his confreres, circumstances being equal, acknowledges himself inferior to them. Whoever says or acknowledges cut prices in reference to himself or



his confreres, invites public contempt for dentists and dentistry, and makes easy the way of the quack. To use this phrase is to acknowledge the competition of the quack and help him before the public.

"Replate or reset teeth," "put up a set," "take the impression," "permanent plate," "kill the nerve," "cap the nerve," "cap the tooth," "crown the tooth," "freeze the gum," "cure a gum boil,"—these expressions have cost us money and respect, and have sent more people to the charlatan than all the advertisements ever printed. To say that you will "replate a set of teeth," when, in fact, you intend to construct an artificial denture, using teeth from an old or broken one, is to cheat and belittle yourself, and to mislead your patient. The very word replate is short and common-place, and leads the patient to estimate the operation as a trivial matter of transferring teeth from an old plate to a new one, for which very little money should be paid.

"Put you up a set," is no better, and "take the impression" is used by the dentist and repeated by the public as if nothing else but an impression were necessary, and that from it a full denture is cast, like a bullet from moulds. Name all the steps or none, and don't thus mislead people to your own disadvantage.

*Permanent Plate.*—This is open to serious objection, for the continual change, due to absorption of the alveolar process when the teeth are lost, makes a permanently fitting denture impossible. Cut permanent out altogether. Its use misleads the patient. Artificial denture or artificial teeth should suffice.

*Kill the Nerve.*—There is no expression among all the bad ones so improper, undignified, and badly descriptive of the operation as this one. To call the pulp of a tooth "the nerve" is to display ignorance of which a dentist ought to be ashamed; and to say "kill," when you mean "devitalize," or "destroy," is as vulgar as "rip the belly," if used by the surgeon respecting an abdominal section. "Kill" and "rip" are quite proper for butchers, but not advisable for doctors. Housekeepers kill rats and mice with a few cents' worth of poison, and little or no anxiety or skill. If a dentist devitalize the pulp of a molar with arsenic, remove it, and fill the roots in aseptic condition, in three sittings, and call his operation "killing the nerve," his patient will estimate and pay him about as she does her washer-woman for the work of as many hours. It is no wonder so many patients think there should be little paid for an operation called by such a name. "Destroy and remove the pulp and fill the roots," is surely not too long a statement.

The same reasoning applies to "cap the nerve," "cap the tooth," "freeze the gum," "cure a gum boil," or "crown the tooth." These expressions are alike in their improper, undignified, and undescriptive brevity. They set forth the operations for which they stand as common-place tricks of a trade, just the things for which a quack can "quote prices," and worthy of little

money or respect, like the man who uses them. When you describe or speak of your operation to your patient, use a few minutes of your time to describe it properly, and don't allow anyone to use these expressions in your hearing without immediate correction. If people were instructed by their local dentist concerning the cleanliness, knowledge, skill, honesty, and care which are necessary in a successful operation, they would never go to a quack. To so instruct the people, care in our words and respect for our operations and ourselves are necessary. If you don't want to help quacks, don't give short, un-descriptive names to your operations. Don't itemize fillings, crowns, extractions, cleaning teeth, devitalizing pulp, etc., with a definite charge for each item, for your patients, but make judicious use of the words "professional service" (in rendering account), "operation," "treatment," "dressing," "prevent infection," "relieve pain," "remove the cause," "prevent caries," "management," "restore," "repair." Use such words as these in their proper sense. They make clear to the patient that professional skill is necessary, and you need not fear that a quack will adopt them. He can't use them in advertising or "price cutting."

*Repair* means to restore to a good, whole, or sound state after injury, dilapidation or decay, to mend, to renovate. No word is more useful or better understood by all people. It has a comprehensive meaning, and is, I venture to think, more appropriate, descriptive, clear, and elegant than "fill," "plug," "crown," or "cap." No display of technical language is necessary or advisable if you use common sense in choosing words. But don't choose these words: "Silver," "composition," "porcelain fillings," "Justi's or White's teeth," "best sets," "examination free," "treatment free," "extracting free," "use cocaine." This is decidedly unethical language. If you must name the material with which you fill, why not honestly say "amalgam" and "cement"? And why should you make trouble for yourself and all of us, by advertising among your patients the name or product of any manufacturer of dental goods? When you say "best set," you imply that the only difference between one artificial denture and another is the cost or quality of the teeth. To declare your examination free is to declare your professional knowledge and opinion worth nothing, like that of the oculist in the jewellery store. "Treatment free" is in the same class. "Extraction free" implies that you are glad to see teeth lost, and are doing all you can to encourage extraction. It also shows that the operation costs nothing, is of no importance; that a dentist will extract for fun.

Cocaine is a seductive and dangerous narcotic; therefore do not name it, or let your patient know you are using it. By this course you will avoid not only unpleasant symptoms aroused in the patient by fear, but also the possibility of initiating the cocaine habit. The same applies to morphia.



In another class we have "ulcerated tooth," "dead tooth," "rotten tooth," "hollow tooth," "hole in a tooth," "matured at the root," "false sets," "dose of gas," "pull," "yank," "draw," "scrape out," "stump," "fang," "snag," "doc."

An alveolar abscess is not an ulcer, nor is it a disease of the tooth. It is a disease of the tissues outside and beyond the tooth, caused by infection from apical foramen. A pulpless tooth is not necessarily a dead tooth. A dead or rotten tooth would soon be cast off by the living tissues. All normal human teeth are hollow, and to say "hole in a tooth," when you mean carious cavity, is to be inaccurate, as well as vulgar, for all holes in teeth are not carious cavities. People can learn the meaning of caries as easily as they learn the meaning of measles, small-pox, or appendicitis, and a lesson from the dentist in this would be worth more than a crown. The next three phrases need no discussion. But a dental surgeon who can properly extract a tooth knows that neither a pull, a yank, nor a draw will accomplish this purpose; and he who can properly clean teeth will not say "scrape," nor will he say "stump," "fang," "snag," or "doc."

"Complaint is the largest tribute heaven receives and the sincerest part of our devotion." Yet I must complain again that this language is unfit for students of science. Are "price," "opposition," and "kill the nerve" words becoming a doctor of dental surgery, a teacher of the people? Are these words an expression of that exalted view of dentistry, which we should entertain? Do any of the words I have criticized express or even suggest the nobility or the dignity of a worthy dentist's ambition? Do they suggest that a dentist hopes and labors for rewards other than mere dollars and cents? Are they marks of culture by which the social interests of the dentist are advanced? Are they even suggestive of accomplishments worthy of a respectable fee? Our words should suggest these things.

To those who are not fond of reasoning, but prefer specific advice, I would say: Boast of the money you make. In towns say \$4,000 to \$6,000, in cities \$10,000 to \$20,000 a year. Boast that you work in your office every night till ten o'clock, also Sundays, and that you do a great deal of crown and bridge-work—in fact, that you make "a specialty" of it. The first boast will arouse the envy of your neighbors; make them suspect dentists of greed and extortion, and pay your fees unwillingly. It will also induce young men who want to get money quickly to study dentistry. Your second boast will show that you are a grovelling tradesman, who has no time or desire to read, no interest in education for the duties of a good citizen, that you care for nothing but money, are not a professional man, and ought to be called "doc." Your third boast will make it probable that you know little and care less about conservative dentistry, being more interested in the sale of crowns and bridges

than in rendering them unnecessary. Hence you are not to be trusted with the care of children's teeth. Fit up your laboratory with two-horse-power motor, big plate rolls, all the porcelain furnaces made, and other machinery. Hire three men. Say you introduced crown and bridge-work and continuous gum-work in Canada; that you do this work for other dentists. Show people your laboratory. They will think dentistry can be done in a mill by divided labor and machinery; that you are a pretentious extortioner, boasting now of your crowns and bridges, whereas a few years ago you boasted of the teeth you pulled, and the sets you made, and that you make not honored the name of dentist. Always speak of your fellow-practitioner in town as "my opposition." Talk about your prices, guarantee your work, invite patronage, give bargains, do jobs, make contracts, replate teeth, kill nerves, charge for gold fillings by the leaf; give names to all your operations. Say "false teeth don't ache," and if there is an ethical dentist near you, say, "His prices are too high." This will lead people to various conclusions; whereof one will be that you and the quack are equal in language and method, even if you don't "advertise," the choice between you being a matter of dollars and cents only. Another will be that dentists are a body of illiterate mechanics, who ought to be treated accordingly.

Never read dental journals or any literature, excepting price lists of teeth, rubber, gold, etc. Don't take a post-graduate course or otherwise learn to make an artificial denture worth more than \$8.00, a filling operation worth more than 75 cents, management of alveolar abscess, therapeutics, root filling, or any such thing. Be candid, and tell dental students that money is what you seek first, last and always. If your father is a talkative man, and not a dentist, invite him to your office, show him all the brass crowns and bridges you made (or bought) at college, and tell him they are for your patients next day at \$10 per tooth. Your wife will do if your father can't come. In rendering account, don't mention professional services, but specify each item separately by name, and at a price, as blacksmiths and plumbers do. This will show how you compare with the "real painless," besides teaching people that the work of a dentist is mere trade.

Before closing, I would ask: Is crown and bridge-work the achievement of which a dentist ought to boast, and by boasting teach the people to expect it as a panacea? "teeth without plates!" With all the recent increase in scientific knowledge and improvements in education and methods, can a dentist do nothing more worthy of special mention and pride? Would it not be more becoming in us and instructive to the public to boast that for young people who secure our services in time, no crowns or bridges will be necessary? Or to faithfully do something to justify the words of Oliver Wendall Holmes, when he said: "The dental profession has established and prolonged the reign



of beauty. It has taken from old age its most unwelcome feature and rendered enjoyable human life far beyond the limit of the years when the purblind patriarch might well exclaim, 'I have no pleasure in them.'"

It seems that commendable ambition and a sense of beauty, truth, and dignity must be developed in a man before he will prefer the language, manner, and style of dealing, deemed professional. But surely it is not too much or too soon to ask that the grosser errors be avoided even for the sake of our social and financial interests, for unless the majority do this, the name of dentist will not be deemed a guarantee of learning, culture, good taste or professional character. Improvement is progressing however, and if I assist in it even a little, I shall not have written in vain.

In this work I thankfully acknowledge the kind assistance of Drs. Brophy, Black, Hanna, Johnson, Moyer, Webster, Pearson, Cross, and many others.

#### DISCUSSION.

G. M. HERMISTON, B.A., D.D.S., Picton, Ont.—I wish to express the gratification it has given me to be asked to discuss a paper on Ethics. I thank the committee most heartily for doing me this honor. I must congratulate the essayist on the very manly, honorable, and professional spirit he has put into this subject, a subject which should appeal most strongly to every noble member of our profession.

It does seem to me that if there be one thing more than all others that we as professional men ought to do, it is to make our profession as worthy, as honorable, and as commanding of respect as any of the learned professions, and then the next thing for us to do is to make ourselves worthy members of such an exalted profession. The essayist had this goal in view in preparing his very excellent paper. He has shown us our stumbling blocks, and has started us on the truly professional road; it is ours to follow along the lines directed. Is the essayist's ideal too high for our profession? Decidedly no. Our ideals must ever be higher than we can hope to reach; it must ever be before us, for when we have attained to our ideals we are in a most dangerous condition; we have reached a state of contentment which amounts to nothing more or less than indolence. When this stage is reached, we strive for nothing better. Thus, I say, our ideals should ever be beyond our grasp.

"Let us, then, be up and doing,  
With a heart for any fate;  
Still achieving, still pursuing,  
Learn to labor and to wait."

The laws of ethics are as old as society, and these laws must be respected, irrespective of petty jealousies, or even of finances,

if our profession is to attain its highest status. Our individualities must all tend toward one common goal, the uplifting and ennobling of our science. This will demand from each and all of us the practice, daily, of the most noble principles with which humanity is endowed. Let us not forget that,—

“Our acts our angels are for good or ill,  
Those fatal shadows which walk by us so still.”

The essayist has well said that we must display better judgment and show more propriety in our choice of words and phrases to describe our operations. True, our patients often make use of the most uncouth expressions, but we must rise above all this and carry our patients with us. Doubtless many of these ridiculously inadequate names and terms originated in the early history of dentistry, and before it was recognized as a science and a profession, but if we are to attain to a true professional dignity, we must prove ourselves worthy, we must display that liberality of knowledge and manly principle which will demand respect; we must practise the golden and not the gold rule; we must at least remember “the brotherhood of man,” even though we have forgotten our “professional brotherhood.” No man ever dignifies himself by belittling his neighbor or his professional brother. The blow directly or indirectly reacts upon ourselves, the imprint of each and every undignified word and deed is indelibly fixed upon our character. The public is not blind, and in besmirching our confrere we are only belittling ourselves. Say something in defence of his honor or remain silent.

Never speak lightly of a brother's work, for at that very moment one of your patients may be presenting some operation of yours to that very brother, and finding every imaginable fault with it.

JOHN STEELE (Fergus).—I would not like to see this paper passed over without some further discussion, even though my criticism shall be of an adverse character. I do not see how we can raise the standard of our profession by the use of a lot of technical terms. It appears to me it can be done much more effectively by honorable dealing, holding steadfast to what you think is right treatment for your patients, and by always treating other practitioners in a gentlemanly manner. I think it is generally admitted that the simplest language is the most effective. Clergymen endeavor to make their discourses as simple as possible. If we use high-sounding technical terms in our conversation, it will always be most necessary that the best of our language shall be carefully chosen to correspond. If a rough old patient comes into our office, and makes use of most commonplace words to express his trouble, I don't think we should find it necessary to call it by some bewildering text-book name. He might look on it as so much “hot air.” I don't think it would be



polite treatment to blankly contradict a patient in order to use a more scientific expression. Of course, I believe in correcting our language, but would not when conversing with patients advocate confining ourselves too strictly to technical terms.

CHARLES BEAN (Paisley).—I think Dr. Gowan has gone too far. He does not tell us any remedy for this trouble. He does not tell us what to say to our patients. Ours is not the only profession in which slang must be knowingly made use of. In banking, it is just the same. Again, the medical profession is the same. I have a brother a medical doctor, and he told me last night, that a boy came to his office and said to him, "Oh doctor, come down to the house, mother has got it in the legs." Now, what would be the use of making use of any technical terms in a case such as that. If Dr. Gowan's paper is to have a beneficial effect upon us, I believe that it is in the fact that it shows that we must educate the public. Now, about the word guarantee. I do not believe in guaranteeing. I had occasion to appear in court some time ago as an expert witness. An old man over 70 came to the office of the dentist, and wanted to have a full upper and lower denture. The dentist saw that, owing to the man's age, he would not need them very long, and again, the conditions of the old man's mouth were so unfavorable that he thought it better the man should not have the teeth, and advised him to that effect; but the old man insisted, and the dentist made the dentures; but the result was that the man could not use them after a short while, and as a consequence would not pay for them. The dentist thought that his reputation was at stake, and so took the matter to court, and although the dentist's lady assistant was in the office at the time, and had heard the arrangement between the patient and the dentist; that the dentist had advised him not to have the dentures, and all that, and, although I was there to swear and give evidence of the reasonable display of skill which had been exercised in the work, and which I would think would justify him in obtaining his fee, the judge simply said, "When a man takes an impression, that is a guarantee that they should serve the purpose for which they were intended," and that ended the case.

A member at this juncture laid on the table advertisements of a dentist, which he said were detrimental to the best interests of the profession.

G. M. HERMISTON.—May I be allowed to say a few words of congratulation to Dr. Gowan? I think he has treated his subject admirably. I agree with a great deal of what he says. I do not take it that he intends we should use these terms exclusively in our every-day practice, but I believe that if we are to advance our profession, we must have an ideal to reach, and I think Dr. Gowan shows us that ideal. With regard to Dr. Bean's remarks, I would say that the judge who passed such judgment is one of those persons who need the education we have been speaking of.

A man that performs a service, and does the best possible under the circumstances, should receive fees for that service. We are not expected to perform impossibilities, and because a member of the bench chooses to display ignorance, that is no reason why we should keep ourselves down.

J. H. IRWIN (Collingwood).—I must also congratulate Dr. Gowan. When I came here this afternoon I expected to hear something good, and I must say that I have. I practice near enough to Dr. Gowan to see the work he is doing. I have patients of his drop in occasionally, and I tell you, gentlemen, that they never speak of him as *Doc* Gowan. They have a wholesome respect for him, his work, and his fees. His patients have one peculiarity, and that is, they seem to be educated in the work he is doing for them. His teachings may be, and savor of one rather advanced in the profession, but I think that they are the kind that we should try and imitate.

C. E. PEARSON.—There is one word which Dr. Gowan has omitted, but which has been mentioned incidentally, and that is the little word "cure." We do not cure, gentlemen. Nature makes the cure, and all we can do is relieve the conditions and let nature go on and perfect the case. I am heartily in sympathy with the paper, and also with a great deal of the discussion expressed. In my opinion, we cannot educate every one, but we can educate the young people, and young men, and in this way we can improve the language of our profession.

J. R. MITCHELL (Perth).—I think that there is a happy medium to be struck between Dr. Steele's and Dr. Gowan's ideas. I think that Dr. Gowan is rather inclined to have us use these words indiscriminately, but, as one of the previous speakers has mentioned, we could not attempt to use such technical terms as he has laid down in every case. I think it would be detrimental to the profession, if we were to use such language with all patients of all classes. Why, some of the people would not know what we were talking about. But again, suppose we have a lawyer for a patient. He, of course, has received a college education, and is acquainted to some extent with our professional or technical terms. I think in such a case we should use dignified language, or I believe they will lose respect for us as professional men. Then, the other extreme which Dr. Steele mentions, were we to start and use such terms as "local anesthetic," "orthodontia," etc., some persons would think we were going to poison them, and it might turn out like the dentist who told his country patient that he was going to give him a general anesthetic, and after explaining to him what he meant was that he was going to render him unconscious for a short while, whilst he was performing the operation, he was surprised to see the old fellow take out his purse and begin fumbling with his money, so he said to him, "Oh, my good man, you need not pay me until the work is finished," to which the old chap replied, "I wasn't goin' to pay ye,



I was just goin' to count me money before you made me unconscious." None of us would care to have any cases like that. I do not think that there is any opposition to Dr. Gowan's paper, but the fact remains that there are times when it would be detrimental to the profession to use terms sounding too technical, and consequently I say use terms to suit the education of our patients.

H. E. EATON.—I would like to add a word of appreciation of Dr. Gowan's paper. I think it an excellent one. Certainly we should have our ideals a little above us; then we will have something to work to. I have often heard people remark, "That was an excellent sermon, because it fitted so and so." I think this an excellent paper, because it condemned me in a number of points. I have in the past thought that my ideals were high along this line, and I have in my own mind made some criticisms of others; but as Dr. Gowan brought up the points one by one, I said to myself, "That's me," and I had to say it in a great many cases, too. I did not think that I had been using these words; but in listening to this paper I was made aware of a great number of my own mistakes. We yield to the ways of our patients, and are tempted to get down to their level in trying to make ourselves understood. Of course, Dr. Gowan did not intend for us to adopt this sort of thing to-morrow, but it should be gradually brought on. A little incident comes to my mind now. It happened in this city, and is told about an old gentleman who was supposed to be at the point of death, and wished to make his confession before he passed away. When the priest arrived at his bedside, and asked for his confession, he said to him, "Oh Father, put me down for everything but murder." Now, while I do not take all of the essayist's accusations to myself, I am forced to acknowledge that I have been unconsciously yielding to many of the errors alluded to.

A. E. WEBSTER.—There are two points that I would like to illustrate from my own experience, which I think will show how people can be educated to the correct use of terms. Just a few days ago a young lady for whom I was performing some operation, said to me, "Is that tooth ulcerated?" I looked at her and replied, "Not quite that." She looked at me and said, "That is not the correct expression I have used, is it?" I said, "No." "Well," she said, "I have used it before other dentists, and they have never corrected me for it." I then explained the difference between ulcerated and abscessed. A point about itemizing accounts: A year ago I made out an account for a gentleman in this city, first putting, "To professional services," and just below I gave the details. When the account was returned to me to be receipted, I saw that the gentleman had torn off the part that had been itemized. He was disgusted with me for sending him a bill of such a kind. I need not tell you, gentlemen, I profited by the lesson.

DR. ROBERTSON.—A term has been well used by Dr. Mitchell, and that is “striking a happy medium.” As he says, if an educated gentleman comes into our office, it is advisable to use those terms as much as possible, but, on the other hand, an uneducated person comes in, for instance, a poor servant girl, some of whom find it hard enough to understand the English language at all. It would be a waste of time to use such terms. I met with an instance some time ago. I wished to have the girl empty her mouth of saliva and so politely asked her to expectorate in the cuspidor. She looked at me as if she did not understand, and so I reiterated what I had said, but apparently she was still dumfounded; but a friend that was with her came to the rescue, and said to her, “He means for you to spit in the spittoon.” There is a case in which technical terms were not understood, and in such cases such terms are not to be used. I believe that the best way to uphold the ethics of the profession is by using good common English.

DR. PEARSON.—In regard to expectorating in the cuspidor and spitting in the spittoon, I think the difficulty could be easily avoided by merely saying, “Empty your mouth, please.”

DR. H. CLARK.—I want to say in regard to the word cuspidor, that I was in doubt about the word, and so I looked for it in two dictionaries, but could not find it in either, but both gave the word spittoon.

DR. MOYER.—May I be permitted to interject here, what a friend of mine told me about a cuspidor. An old chap had been asked to use the cuspidor, and said, “Oh, yes; throw the cussed thing out of the door.”

DR. J. B. WILLMOTT.—One important matter has not been touched upon, our language in reference to other practitioners. What is to be said of us as dentists or of dentistry as a profession, when we are continually casting reflections on the skill of our confreres? We can greatly injure one another in this way. Two dentists are practising in the same town; one can undermine the esteem in which the other is held without saying over much. Patients are often asked, “Who performed that operation?” Let me suggest that this is an impertinent question; as well ask who made their gown. When the question is answered, the remark is likely to be, “I am surprised that Dr. So-and-So should do work of that kind.” Of course, the patient does not care to go back to Dr. So-and-So, because he has been given the idea that it is an unfavorable operation. We are doing this kind of thing every day. It is very opportune on an occasion of this kind to call the attention of every member of the profession to the fact that it is our duty to be fair and just to our fellow-practitioners. We should not, if we wish to maintain the dignity of our profession, say anything about the operations of our confrere that we would not care to have said about our own.

DR. MITCHELL.—I agree with what Dr. Willmott has just



said, and I think that, to a great extent, we hold the life, as it were, of our fellow-practitioner in our own hands. I think at the same time that the people have such a sense of justice that any dentist who tries to injure the character or the professional capacity of his fellow-practitioner injures himself more than he does the other party.

DR. SECCOMBE.—With regard to advertising. We feel that it is necessary to advertise to some extent, but I think that the advertising of some dentists tends to lower the dignity of the profession. I would like to ask Dr. Willmott what course there is open to the dental profession in this respect. I understand that both of the gentlemen referred to by a previous speaker are recent graduates from the school.

DR. FRAWLEY.—I think that the college is to be blamed to quite an extent for this advertising, for it must be admitted that the college does quite a bit of advertising, and this is known in the classes. I remember some time ago a young man graduated from this college. He had written good papers, but was not fitted to do the practical work. Now remember, gentlemen, his theory was all right. The college passed that man, and I understand that the only way he can make a living to-day is by advertising.

DR. J. B. WILLMOTT.—Allow me to correct Dr. Frawley by saying that the college does not advertise at all. May I suggest further that it is not good taste for him to cast slurs on his fellow-graduates. It is not always the unskilful man that advertises.

DR. C. N. ABBOTT.—In regard to this matter of advertising, it has always been a question that dentists have been unable to cope with. Could we not have some regulation by which anyone advertising a regular scale of prices should lose his license? Why could not sufficient force be brought to bear upon the Universities of Toronto and Trinity (but I understand that Trinity has provided something of that kind) that could cancel the degrees of such advertisers? Why should not dental societies bring sufficient pressure to bear upon such bodies, as to compel them to cancel such degrees, as is the case in other professions?

DR. GOWAN (closing the discussion).—I am delighted to see such interest taken in my paper, but I regret very much that the general discussion has proceeded upon a misunderstanding of what I thought I had made very plain, that is, specific objection to certain words and phrases. Dr. Steele and others say that we cannot expect to speak in technical terms to patients. Well, I have not advised you to do anything of the kind; but, on the contrary, have suggested a few of the plainest possible words, for example, "relieve pain," "restore," "repair," "remove the cause," etc. Cannot every person understand these simple words? When the paper is printed, you will have a better opportunity to understand what I mean, and I think you will see that my contention

is for plain language and common sense. Now, I want to say, as a matter of personal experience, I have been for seven years practising among rural people, who are not wealthy. Yet they cheerfully pay the fee I ask for any kind of operation, whether the making of an artificial denture, the restoration to comfort and utility of a tooth, or any other work. And I find no difficulty in so dealing with these people that they will not speak to me of "prices." They do not regard themselves as customers coming to buy things of me. I have been working, too, where peddling dentists come to sell their wares. They do not get any patient I desire to have. They endeavor to make their "prices" attractive, sell "best sets" at \$6.00, and say they will extract free. Now, I find no difficulty in collecting \$12.00 for an artificial denture. I do not profess to be an expert, but I can make a denture worth \$12.00 or more, and so speak of the work that my patient may consider its value wholly dependent upon my skill as a dentist. When we cause the public to believe that dental work is strictly professional in character, and dependent for its value upon the skill, and knowledge, and honesty of the man who does it, we shall have solved the problem of advertising and quackery. This we never can do while we use the language of the shop. I agree with Dr. Willmott in some of his conclusions, but I take exception to his views about asking a patient who did certain work. If I find a pulp chamber full of cement, a question arises, "Should I put a filling over that, or remove it to examine the condition of the root canal?" As a means of diagnosis, I should ask, "Who did the work?" The answer would often help me to decide what to do. If I know the dentist to be a botch, I need not say so; but I will not trust his work. Again, there are dentists in Ontario who do not deserve, and should not have our fraternal sympathy and protection. I see no reason why I should uphold or protect an unethical, undignified, and incompetent man, because he holds a license to practise dentistry. To do so would be an abuse of the patient's confidence in my honesty. In the judicial decision referred to by Dr. Bean, we see a useful lesson to all dentists, viz.: Don't follow your patient's dictation where yourself should be the better judge, and don't knowingly perform a *useless* operation. That judge rendered a morally proper verdict. In regard to proper language, I have not suggested the use of any such word as "expectorate" or "cuspidor," and I may say now that I dislike and avoid such pedantic finery as "dental organs," "oral cavity," and "expectorate." "Teeth," "mouth," and "spit" are proper English words, and more elegant. The word "pulp," besides being technically proper, is more easily and accurately understood by a patient than "nerve." To intelligently use the word "nerve," a knowledge of anatomy and physiology is necessary. I trust it is now clear that I recommend the simplest language consistent with accuracy and professional dignity in our conversation with patients. Gentlemen, I thank you.



## SOME CASES OF ORAL SURGERY WHICH THE DENTIST SHOULD BE ABLE TO DIAGNOSE AND TREAT.

BY J. E. WILKINSON, M.D., L.D.S., D.D.S., PETROLEA, ONT.

Read before the Ontario Dental Society, February, 1903.

The object of this paper is to speak of some of those diseased conditions of the mouth and jaws requiring surgical interference, which should seldom be allowed to go out of the dentist's hands. Even should he desire to turn such cases over to the general practitioner or specialist, he should certainly be able to diagnose any diseased condition met with intelligently. I think one would be justified in asserting that the origin of most lesions of the mouth, jaws, and associate parts can be attributed to diseases of the teeth. This paper will be confined almost entirely in illustrating just a few of the most prevalent diseases resulting from septic material discharged from decomposing pulps of teeth: *diseases of the antrum, necrosis, tumors*, as frequently met with by the dentist.

*Diseases of the antrum* are usually simple in character, easily diagnosed, and, as a rule, readily yield to treatment. The dentist should be better qualified than the physician for discovering these conditions at their inception, as he has greater opportunity for coming in contact with them, and should be better qualified to treat them. Considering their frequency he should know in detail the anatomy of this region.

*Causes.*—The most prominent source of trouble in this cavity is lesions secondary to the diseases of the teeth. If the dental arch be entirely clear of teeth and healthy looking, we must not jump at the conclusion that the source of trouble lies in some other direction. It may be that a portion of a root has been broken off deep in the socket, and gum grown over it and healthy looking. The abscess in this case need have no external sinus. The relation of the root is with the antrum. If the arch has its full complement of teeth, and all appear healthy, the source of trouble is likely a dead pulp. A close relationship exists between the roots of several of the teeth and floor of the antrum, and in some instances these roots even penetrate the sinus, particularly the palatine root of the second molar, their membranes thus forming a continuity of structure. The common alveolar abscess is, therefore, the common disease of the antrum, the only difference being in the place of discharge—the alveolar abscess venting itself on the gum, the antral abscess into its cavity.

*Diagnosis of Antral Abscess.*—The accumulation of pus in the antrum shows by its opacity with the electric mouth-lamp in a dark room, when the light bulb is placed against the roof and the mouth closed, light escapes in various directions. If one

antrum contains pus, this side of the face will be comparatively dark. Pus seen in the middle meatus, or a discharge from the nose on affected side—if the orifice of the antrum is closed from any cause there will be no discharge—there is a feeling of fullness and tension and bulging of the walls as pus accumulates. Depression or swelling of palatal arch of affected side is diagnostic; rise of temperature usually.

*Treatment.*—Remove the diseased tooth and enlarge the opening into the antrum with bur or trephine sufficiently for proper drainage and injection. Syringe cavity with sterilized water and repeat until liquid comes out clear; follow this with a mild solution of boracic acid; keep canal open by a cannula in a plate, fastened to adjoining teeth. When suppuration ceases, remove cannula; freshen edges of the wound to allow opening to close. Following is the history of a case I am treating at this time:

Mrs. B., aged 35, had been suffering with a tumor on right cheek for several months. She applied to her physician, who gave her a wash, telling her to call again in a few days. Her condition not improving, she called at my office a few days later, about December 1st. Patient was irritable and pale; temperature and pulse above normal, external wall of sinus much distended, and on looking into the mouth the vault of palate on affected side was decidedly prominent. Abscess of the antrum was suspected. On examination of the teeth on that side, I found them to be in good condition. The second bicuspid was missing, and the socket not entirely healed over. After some questioning, I elicited the fact that about two years previously, the second bicuspid had been crowned, and shortly after, an alveolar abscess forming at the root, the tooth was extracted. Opening up the socket with a lance, I drilled through to the antrum with a perforating bur, which was followed by the escape of about an ounce of pus. Treatment as above outlined was followed. When patient was last seen, a few days ago, suppuration had entirely ceased.

*Necrosis* is the death of a large or small portion of bone in mass, resulting from the absolute and permanent arrest of function. Caries is the molecular destruction of bone, corresponding to ulceration in the soft parts.

As met with in practice, necrosis is commonly due to a non-traumatic infective inflammation. Necrosis may commence either as a general osteitis, the bone being destroyed by the arrest of the circulation, thus cutting off nutrition; or the periosteum proper may be affected, due to its nutrient structures being destroyed. The dead portion of the bone termed sequestrum, appears like an irregular eroded fragment, almost completely separated from the remaining structure. The separation occurs by a process of demarcation, as in necrosis of the soft parts, consisting of an area of absorption of calcerous matter. This ne-



crotic portion or sequestrum acts as a foreign body, and by its continued irritation keeps up a suppurative inflammation of the surrounding tissues. There are usually one or more fistulous communications with the exterior.

Necrosis is common in both the inferior and superior maxillæ, but it is known to occur about four times more frequently in the lower jaw than in the upper, owing to the ramification of blood vessels in the superior maxilla being so numerous. If the sequestrum is peripheral, and has been discharged, the periosteum or the bone may replace the lost tissue. If the sequestrum is large, or prevented by the circumstances of situation from being thrown off, suppurative inflammation may continue for years, and the sequestrum become enveloped in a case of new bone. This is especially so in the inferior maxilla, it being necessary to break through the new bone to get at the dead part.

Necrosis is usually preceded by a deeply-seated pain and inflamed and swollen gums; the teeth become loose and sinuses form in every direction, giving exit to pus. On passing a probe, dead bone is easily felt, and when struck by the probe the note is clear and high-pitched, altogether different from that given out by healthy or carious bone. The separation of the dead bone from the living is a comparatively slow process but should nearly always be waited for when removal by operation is to be effected, so that only the dead bone may be taken away and time be afforded for the formation of a firm covering; the only exception to this rule is found in those more severe cases in which an early removal is demanded, in order that fatal exhaustion from profuse suppuration may be prevented. When separation has taken place, it can generally be recognized by the mobility of the sequestrum when pressed upon through one or more of the sinuses. Small sequestra, especially superficial ones, may make their way to the surface and be thrown off, but the process is slow.

*Causes.*—Necrosis of the maxillæ may be result of very different causes. It may be produced by: (1) Septic condition of the teeth; (2) impacted wisdom teeth; (3) syphilis; (4) phosphorus; (5) mercury; (6) exanthematous diseases, etc. I do not intend to enter into details on each of these causes, but will make a few suggestions on some practical cases I have kept a record of in my own practice.

Mr. C., aged 25, suffered for about two years with severe pain in left side of face and head. A dentist was consulted, and after thorough examination of the teeth on that side, and finding them to be sound, he was advised to see his family physician. The family physician was consulted, and for many months was under his treatment, nearly all the time complaining of a dull, heavy feeling on that side of the face. The patient was treated for neuralgia, together with constitutional treatment, without any improvement whatever. The pain becoming more severe, and that side of the face becoming considerably swollen, the

patient consulted another physician, who advised the extraction of the inferior second molar, and lanced the cheek on the outside. Extraction of the second molar was attempted, but failed to remove it. When he presented himself at my office, July, 1902, with above history, he was in an emaciated condition, anemic, and nervous. An examination of the teeth on that side found them to be all in position (except the wisdom tooth) and free from decay, though somewhat crowded. There was a slight oozing of blood and pus from wound on outside of cheek. The gum over the wisdom tooth seemed slightly inflamed, though no visible signs of eruption. Close inspection with an electric mouth-mirror revealed a small, fistulous opening toward lingual side. This would easily pass unnoticed, except by careful examination. An exploration through this fistula was made with a fine steel probe, and at considerable depth beneath the gum, a hard, smooth body, like enamel, was encountered. Diagnosis was at once made of an impacted wisdom tooth. Withdrawal of the probe was followed by a light, yellowish-colored fluid—a diagnostic point in necrosis.

*Treatment.*—The parts having been anesthetized with cocaine (and by the way if I were doing the same operation again, I would administer ether) the tissue overlying the tooth was dissected back to obtain free access; then with engine and suitable burs, the bone impinging on the tooth was cut away sufficiently to obtain leverage upward and backward with an elevator. Fine-beaked forceps were then used to remove the tooth. Considerable necrotic tissue and bone were removed from the cavity, and on further examination with a steel probe, a sequestrum of considerable size was discovered. After thorough irrigation with peroxide and sublimate solutions, the cavity was packed with iodoform gauze to allow separation of the sequestrum. During this operation, mouth should be kept open with a prop, and an assistant to manipulate siphon to remove saliva from mouth and keep seat of operation clear of blood with absorbent cotton. This treatment was continued once a day for two weeks, then every third day; at end of four weeks sequestrum was removed, cavity burred and curretted, and irrigated with antiseptic solutions, then packed with iodoform gauze to allow wound to granulate from bottom. A tonic and stimulating constitutional treatment recommended: Gude's pepto-mangan, plenty of fresh air and nourishing diet; Wampole's antiseptic solution recommended as a mouth-wash. In six weeks patient was dismissed, wound had closed up, and his general systemic condition was improving. There is left a puckered and disfiguring scar, probably for life, through lancing cheek from outside. Had the case been lanced from inside, or had patient been seen earlier, this puckering could have been prevented by cutting through the fistula, and treating it from within, thus allowing wound in cheek to heal. In these cases the strictest antiseptic precautions should be



observed, as the danger from pyemia and septicemia is considerable.

*Tumors of the Jaw, Face and Neck Sequelae to Septic Pulps of Teeth.*—By tumor is simply meant an enlargement of a part, no matter where such enlargement is met with, or from what cause it arises. The statement is made by good authorities that by far the greatest percentage of tumors of the face, jaw, and associate parts have their origin in diseased teeth and septic pulps. The most common of those met with by the dentist are the alveolar abscess cysts, osteoma, epulis. An illustration of the result of an alveolar abscess forming an osseous cyst occurred to me during last summer. The patient, a young man of 21 years of age, came to my office with a swelling on left side of inferior maxilla, about the size of a hickory nut. Upon examination, I found all the teeth on that side in good condition, except the first molar, which contained a large amalgam filling, on removal of which I found the roots filled with same material. A history of considerable pain and discomfort was given a few days after its insertion, some three months previously. On examination of the cyst, there was no appearance of surrounding inflammation, gave no sense of fluctuation on pressure, and the soft parts covering it differed in no respects from the surrounding tissue. The pus was provided for by the expansion of the outer plate of the bone. *Differential diagnosis* from alveolar abscess is made by their rapid growth, and by the exploring needle. The cyst was treated by a transverse incision and packing cavity with lint saturated with tincture iodine. This obliterated the cyst, and destroyed the sac at end of root. Satisfactory results followed the operation, and no recurrence of the trouble.

In connection with this, I might mention an interesting case that occurred with a relative less than two years ago. The patient had been afflicted with a growth on the chin to the left of and below the symphysis for over a year. During this time the patient had consulted several physicians, one of whom, a surgeon of no mean repute, diagnosed the case as cancer, and advised immediate operation. Thinking that the origin of this trouble might be from a diseased tooth, I made a careful examination. A slight discoloration was noticed in the inferior left cuspid, which otherwise appeared sound. The tooth was opened into, and a dead pulp discovered. The tooth had a fistulous communication with the tumor shown by the pumping in of  $H_2O_2$ . The tooth was properly treated, and in three weeks all signs of tumor had disappeared.

Mr. R., aged 55, presented himself for examination, with a large, firm tumor on left side in sub-maxillary region, about the size of a pigeon's egg, which was neither painful nor inflamed. Up to this time he was under the care of his physician, who diagnosed his case as tubercular adenitis, there being a

history of tuberculosis in another member of the family, his daughter being under the same physician's treatment for spinal disease. This history, no doubt, had some weight in making the above diagnosis. An examination of the teeth on that side was made. A dead pulp was discovered in the second inferior molar, though to all appearances quite sound and free from decay. The tooth was extracted, and after treatment was replanted with all antiseptic precautions. Tumor was painted once a day with strong tincture iodine to hasten its absorption. In four weeks tumor had entirely disappeared.

These cases point to the lack of appreciation of the medical profession generally of the important part which the condition of the mouth and teeth play in disease. Many times their patients undergo intense suffering or endure prolonged illness, because of the physician's ignorance on these subjects, which should demand his closest consideration.

*Dentigerous cysts* usually arise from permanent teeth, as a result of some form of irritation. From some obscure cause the teeth remain undeveloped within the jaw. They are found in both the upper and lower jaws, and are often mistaken for solid growths. When a slow-growing, painless, solid tumor of the jaw is seen in a young person, the teeth should always be examined. A tooth will likely be found absent, or a temporary tooth where a permanent one ought to be. Cases are on record where jaws have been removed for this affection, supposing the tumor was malignant. It is better in a young person, even if the disease is not looked upon as a dentigerous cyst, to cut into the tumor before mutilating the patient by a removal of the whole or a portion of the jaw.

*Epulis*.—The epulis, a term often applied to the various tumors of the gums, is really not connected with the gums at all, but has its origin in the periosteum of the alveolar process and sockets of the teeth. The simple epulis, in appearance, looks much like the gum, and is a smooth, red, round, elastic growth. It ulcerates, and gives out a sero-purulent discharge. Malignant epulis is usually connected with the socket of the tooth. It is very vascular, of a purple color, grows rapidly, presenting a fungating mass, which protrudes between the teeth and bleeds easily.

*Treatment*.—Early removal by the extraction of the tooth and removal of the alveolar process with the socket of the tooth. Two vertical cuts are made with a saw, and that portion of bone removed with a pair of cutting forceps.

The teeth, although anatomically regarded as dermal appendages, have a very intimate relation functionally to several of the cranial and more remotely to some of the cervical spinal nerves. How frequently cases are recorded of inflammatory conditions seen in the face, neck, and even the external chest, due to disturbed nutrition, the



result of irritation starting in a diseased tooth. As an illustration, let me quote you a case recorded by Hilton in his work on "Rest and Pain." "A professional friend had an enlarged gland below the external ear, the real cause of which was not quite apparent, and so he requested me to look at it. There was a slight discharge of morbid secretion in the auditory canal. We argued together, and I said, 'Very likely it may be the result of a decayed tooth; irritation from it may be conveyed to the auditory canal and induce morbid secretion; that morbid secretion may produce slight excoriation, and that excoriation, aided by lymphatic absorption, may explain the existence of the enlarged gland.' The tooth was extracted. All the other local morbid conditions disappeared, and there was no recurrence of the local symptoms." From this case we can conclude that irritation of a nerve, the fifth cranial in this instance, is sufficient to lead to pathological changes, which eventually may lead to the formation of growths or to ulceration.

Garretson says: "A diseased tooth may express itself in almost any part of the body, while, on the other hand, disease in any part of the body may express itself in discomfort through a tooth." In the medical text-books of to-day on the eye, ear, and nose, little or no mention is made of the part played by diseased conditions of the teeth or dental irritation as a cause of affections in those organs. The lack of knowledge shown by the average physician with respect to diseases influenced by dental irritation indicates that there is plenty of room for more general observation among medical men.

It is important that the dentist should be able to diagnose in an early stage the various growths so frequently seen in the mouth, lips and jaws. It frequently happens that a patient has an incipient malignant growth, of which he is not conscious, causing a sympathetic pain in a tooth. Their early recognition by the dentist whom the patient consults, is a matter of vital importance, for only when taken at their commencement is there a fair chance of preserving the life of the patient. In such cases, refer patient to a competent surgeon.

#### REFERENCES.

International Text-Book of Surgery, Dennis' System of Surgery, Green's Pathology, Tomes' Dental Surgery.

#### DISCUSSION.

P. P. BALLACHEY.—When I first saw the programme for this meeting, I was much pleased to see that Dr. Wilkinson was to give a paper on this subject. It is one that we, as dentists, have in the past neglected, and that many of us still neglect; and I think that such papers as the one we have just listened to, together with such clinics as are on the programme for to-mor-

row, will be very helpful in that they will impress upon us the necessity of giving this part of our practices the greater attention that it deserves, and to show us what great results can be obtained by properly directed efforts along these lines. When I was afterwards asked to discuss this paper, I undertook to prepare these few remarks, with many misgivings, because of my very limited experience and knowledge of the matter likely to be brought forward. I would have been much better pleased if some one of greater ability had been selected for the task.

In the first place, while largely agreeing with the essayist that these cases should rarely leave the dentist's hands, I think I will have to differ from him slightly, for while I don't think it right or necessary for the dentist to turn the patient over entirely to the surgeon, still there must be a line drawn somewhere. In many of the more serious cases (for instance, of abscessed antrum) it is a great help for the dentist, and a great satisfaction to the patient, to have a surgeon, a specialist if possible, in consultation. The average dentist, and that comprises most of us, is not too well versed in the minute anatomy of these parts, or any other, and until we are better qualified than at present, I believe that much better results can be obtained by a dentist and specialist working together than by either one separately. In my own practice, not many months ago, I had occasion to consult a specialist *re* a case of abscessed antrum. The trouble did not apparently arise from dental sources, and it did not yield readily to treatment. I preferred to share the responsibility, and have not regretted having done so. The case I refer to has proven so persistent that it is still on deck, in spite of the fact that the patient has twice submitted to the operation of having both the maxillary and the frontal sinus on the right side opened and scraped out. The second time it was found necessary to keep the wounds open and the cavities packed for about two weeks; during a part of this time the dressings were changed three times a day. Some of our more skilful and experienced dentists may be willing and capable of undertaking such operations, but I do not feel that, in justice either to my patients or to my reputation, I could do so.

While I am speaking of abscessed antrum, I would just like to differ a little from the essayist in regard to his method of drainage. He tells us to attach a cannula to a plate. It seems to me that this method is giving both our patients and ourselves a great amount of trouble and inconvenience. If you have a large draw-plate, make a tube of German silver, perhaps three-eighths or one-half inch longer than you require your cannula, then solder a small collar at the point where it will fit against the gum; with a file cut away all the tube below the collar, except a strip of sufficient width to attach a ligature firmly, through a hole punched near the free end. This strip may be bent in any desired shape and ligated firmly to a tooth. I have tried soldering



the tube to a cap and cementing this to a tooth, but that method is open to the objections that it cannot be removed for cleansing, and it entails unnecessary work. There is still a better method, which I have been unable to test in practice, on account of being unable to obtain the article desired. I refer to Ingal's rubber drainage tube. If any gentleman present knows this tube, and where it can be obtained, I should be very glad if he would say so. It is a soft rubber tube, with flange on each end. The end intended to be in the antrum is compressed within a capsule, and the tube then forced to place. With a probe the capsule is removed, and the flange at either end holds the tube firmly in place. There is one particular in which I think a little might be added to the paper. The essayist has given us a clear and very valuable discussion of antral abscess, tumors, necrosis, dentigerous cysts, epulis and such things; while we cannot overestimate the importance of the dentists having a knowledge of these things, still they are somewhat rarely met with, and many of us, no doubt have not had a chance to have any dealings with some of them, no matter how much we may know about them. There is nothing in the paper, however, about those little surgical matters which almost daily demand our attention. I refer to such simple things as the amputation of a root in cases of chronic abscess, extraction for replantation, trephining for blind abscess, and many other little surgical expedients, which a dentist can so satisfactorily employ in every-day practice. It is of the utmost importance that all our dentists should know how and when to do these things, and it seems to me a sign that more thought is being given to these matters, that so many of our clinics are along these lines.

A. E. WEBSTER (Toronto).—I wish to say a word about rubber cannulas, as suggested by Dr. Ballachey. The flexible rubber cannula, with a flange on each end and a tube connecting these flanges, is not all that is desired. I have tried to use them on several occasions. The idea seems to be a good one, but they are not made in enough variety of sizes, forms and lengths. The flange that lies on the floor of the antrum does not always permit of free drainage. A cannula can be made of gutta-percha, by heating and pressing into the opening, and then removing and squeezing a bulge on the extremities, one to keep the instrument from slipping into the antrum, and the other for keeping it from coming out. Before the gutta-percha gets hard force a fine, straight exploring needle through the centre, making an opening from end to end; this will serve as a constant drainage tube, while the plug itself may be removed to wash out the cavity. If it is vaselined it can be reinserted with little inconvenience to the patient. The tissues will fill in closely around the cannula, and hold it firmly in position.

J. B. WILLMOTT.—I do not propose to enter into any lengthy discussion upon the paper, but just one item in regard to treat-

ment by drainage tubes. These tubes in the main protrude too far into the antrum, and injure the operation, for when the flange comes against the tissues of the mouth, and the tube protrudes too far within the antrum, it acts rather as a dam than a means of drainage, and in a great many cases, the cause of failure in operations is due to the fact that the patient never received drainage at all. Another point I would like to call attention to is that there are many other antiseptic dressings much more pleasant to put in the mouth than iodoform, for example, boracic acid.

DR. G. S. MARTIN (Toronto Junction).—I think that Dr. Wilkinson is to be congratulated upon this paper. It is a subject to which dentists should give more attention. I agree with Dr. Ballachey in the main, in saying that the dentist should not take upon himself the whole responsibility in many of these cases. The only antrum case that I carried through to a successful issue was one that I shared with a specialist in this city, much to my satisfaction. I have had a suspicion for some time that we must see a great many diseased antrums that we do not diagnose successfully. A friend of mine, formerly of Elora, used to find cases of antrum trouble every few days in his practice up there. I have often wondered why we find so very few. I have only had three cases in ten years. There was one point in Dr. Wilkinson's paper that I would like to say a word about, and that is where he referred to the injection of hydrogen peroxide through a root canal in fistulous cases. Now, one experience of mine in the use of this has led me to be very cautious as to injecting it, where I do not think it is going to get out very quickly. I would not like to have any member of this society go home and use hydrogen peroxide in a canal where it would not get out quickly, for I feel sure that he would have trouble on his hands.

DR. DAVID BAIRD (Uxbridge).—When we come to have something to do with these cases, we are perhaps more interested in them. Dr. Martin says that he has had only three cases in ten years, and I must say that I have had only three cases in fifteen years, and that is all I want. In my estimation of these cases there is not only the treatment to be considered, but the trouble in the cleaning of the instruments used. Again, the fees are by no means in proportion to the trouble. I believe in turning over the majority of these cases to the physician. The first case I had anything to do with was that of a young man (I may say that I could not get at the history of this case). He had a tooth extracted, an upper first molar, and as near as I could judge a fragment of the floor of the antrum had been carried away, causing necrosis. I treated that case, enlarging the opening already there, by pressing iodoform gauze through, on which I used 60 per cent. aromatic sulphuric acid, and in three months' treatment it had carried away all the necrosed bone inside, allowing the new growths of tissue to cover over. With regard to drainage



tube, I had an appliance of my own, which worked all right. I made it of soft rubber. I rolled soft rubber around a bar of plaster-of-Paris, the size and length of the opening it was to fit—and at both ends a narrow strip was overlaid, making a rim or flange around the ends, and vulcanized it. I found that this worked first-rate.

DR. A. H. ALLAN.—I had a case a short time ago of necrosis, which was very interesting, because it was hard to diagnose, and in fact I do not yet know the cause. My patient was a very healthy young man. His history, and his family history were good. He had at one time been hurt, and had been undergoing treatment from Dr. Teskey, of this city, for knee trouble, and that was the only bone trouble he ever had. He had tartar on teeth to a slight extent, but not enough to warrant one to suspect that that would cause the trouble. In fact, I could find no cause of irritation at all. In the first place he complained of a pain on one side, such as would arise from an abscessed tooth. Upon examination, I found in the right first molar what looked like an ordinary fistulous opening. I thought that the pulp had died. I was not quite sure. There were amalgam fillings in the first molar and bicuspid. I drilled through the fillings in the first molar, and found that the pulp had not died. The second and first bicuspid were drilled through, and with the same result. I explored through the opening, and concluded that it was too large an opening, and that the bone was affected. I opened and found a large part of the bone necrosed, and a large piece of the alveolar process. I treated in the ordinary way; cut out all the necrosed bone. I may say that I always cut away the bone when I see there is any reasonable chance of saving the bone by cutting away the affected parts. Finally, in about three weeks or a month it had healed up, and is now very nearly filled in. It had not worked its way into the floor of the antrum, but all around the root of the second molar. I was astonished that the pulps of the teeth were not destroyed. About the time the right side had healed, the patient came back to me, and said, "Doctor, I am afraid I have the same trouble on the other side." I found another opening on the left side, exactly in same region, but not so extensive in area, and tried the same operation as on the other side. Now, gentlemen, what was the cause of that trouble. The only conclusion that I came to was, that in the treatment under Dr. Teskey he had probably taken something that contained mercury, the systemic effect of which was the cause of the necrosis. This is the only cause I can attribute, as in every case his family is perfectly healthy.

DR. C. N. ABBOTT.—It seems to me that this matter of oral surgery is one that is very much neglected, not only by our dentists, but by the college authorities. Why is this subject taken up at all if we are not made familiar with it? Why are we not taught it more thoroughly? Why do we have lectures on this subject

and yet get no practical demonstration whatever? And how are we to know how to perform these operations without having had practical demonstrations? Of course, I am not well conversant on how things are taught to-day at the college, but in my time we had lectures, but as far as the demonstration, or even the application of surgical dressings went we had no knowledge. It seems high time that some special chair was formed for this subject, where students would become familiarized with everything pertaining to oral surgery.

DR. HERMISTON.—I have listened with a great deal of interest to Dr. Abbott's remarks, and have to say that he has expressed the opinions that I have been quietly expressing to Dr. Webster here, and that is the fact that I thought the students of the Royal College of Dental Surgeons should have the privilege of attending clinics in the city hospitals.

DR. J. B. WILLMOTT.—And so they have those privileges, but they do not avail themselves of them.

DR. HERMISTON.—Then I say the board should make it compulsory.

DR. FRAWLEY.—The students don't have much time for attending hospital clinics; they have enough to do about the college to keep them busy.

DR. HERMISTON.—With a four years' course I can see no excuse for a student saying he has no time. Under the four years' course is it compulsory?

DR. J. B. WILLMOTT.—Yes; it is. Everything on our curriculum is compulsory.

DR. HERMISTON.—I am glad to hear it, and hope that the students will avail themselves of these privileges, which will enable them to go out and practise with the assurance that they do not need to turn these cases over to the medical men. Whilst some one remarks that it is well to have some specialist to consult with in the treatment of such cases, I think it is the duty of the oral surgeon; and we ought to treat it ourselves. In reference to drainage tubes and cannulas, I may mention a drainage tube which consisted of a spiral spring. The spiral spring is inserted as an ordinary drainage tube, and it is almost certain to obtain drainage whether it is below the floor of the antrum or not. The whole discussion seems to be upon abscesses of the antrum, but there are many other cases which present themselves to the dentist besides treatment of antrum troubles. That of epulis and many other forms of malignant disorders of the oral cavity. I hope that in the future graduates of the Royal College of Dental Surgeons will be able to diagnose and treat successfully any cases which may present themselves.

DR. WILLMOTT.—I am not here to make any statements on behalf of the college, but I would like to remark that under our law dentists are not oral surgeons, and a dentist would be as liable to prosecution if he were to remove a cancerous growth



from a patient's mouth, as if he had amputated a leg. All that is within the scope of the dentist is taught in the college. Unfortunately, though, the idea is prevalent among students, and others also, that nothing should be learned only that from which the dollar can be made. What I try to impress upon students is that there is no kind of knowledge that is useless to the dentist. There is no other class of professional men that is brought into contact with patients for three or four hours at a time, like the dentist, and hence, no class of professional men are called upon to display their general intelligence so much as the dentist. The practice of oral surgery, as that term is properly understood, is no more permitted to the dentist under the dental laws of Ontario than is abdominal surgery. Our law defines definitely what constitutes dentistry. Suppose that syphilis were to be apparent in the oral cavity, and we were to treat it, we would be liable to prosecution. Now let us learn our limitations, as well as our possibilities, and that we are limited by law, and that if we are expert dentists we can leave oral surgery to the medical specialist unless we go on and qualify under the Medical Act as well as in dentistry.

DR. CROSS.—With reference to what Dr. Willmott has said about oral surgery, and leaving it to the physician. I had a case in which a physician was compelled to send a patient to me, and by the way this doctor has the reputation of being the best surgeon in the town, and he was compelled to acknowledge that he did not know what was the matter with the patient. I found, upon examination, that there was something wrong with the antrum. I removed a part of the floor of the antrum, and found a grain of wheat inside. Now, I don't know if this physician could prosecute me for removing the grain of wheat, which, if I had left it there, would likely have grown to a loaf of bread by this time.

DR. SWANN.—My idea was to ask whether the board had made any provision for students attending the clinics at the hospitals. The medical students have access to the hospitals, and are informed as to when operations are to take place. Are dental students informed as to when operations in oral surgery are to take place?

DR. ALLAN.—Dr. Willmott has said we have our limitations. I would like to know if there is not some way of extending these limits. Could we not impress it upon the minds of some of our legislators that we should expand? I think it is the work of the dentist, and that he is the oral surgeon, and that he should be the specialist in every case, or at least he ought to have more privileges.

DR. WILLMOTT.—The payment of a fee of \$20.00 permits dental students to attend clinics in the General Hospital. Clinics are only conducted by the hospital staff, and our students for a limited fee of \$5.00 were to be admitted to the General Hospital

for attendance on a certain number of clinics under Dr. Teskey, and Dr. Primrose. All these clinics are paid for by the board in the same way as lectures. Only five out of the whole class were willing to pay the \$5.00 for the hospital fee. Again arrangements were made with the Children's Hospital for a smaller fee, and only fifteen members paid the fee, and out of this number only about four attended all the clinics. The reason assigned was that they had not time, and this reason was fairly well founded.

DR. MITCHELL.—Considerable suggestions have been thrown out to the Royal College of Dental Surgeons so that future graduates should be enabled to perform oral surgical operations, but I hope that a post-graduate course may be established, so that we older graduates may not be snowed under by the future graduates. It is my opinion that dentists should be qualified oral surgeons. Now, my first experience of disease of the antrum occurred during my first year of practice. It was the case of a young lady, who had been treated for nearly two years for supposed neuralgic trouble on the right side of the face, and it was becoming severe, she was having constant pain in her right eye, and as a result the sight was being affected. She was wearing a full upper denture, and I came to the conclusion that the trouble was in the antrum. The gums were apparently healthy, excepting one spot above, where the second bicuspid, or rather where the second bicuspid had been, and when I inserted a probe it moved upwards very easily, and I knew when I took it out that there was something there that I would not like to have in my own mouth. I at once opened up the antrum. Now the lady returned to her physician, and said I had opened the antrum. He said, "What is that young puppy doing? Can't he mind his own business?" and I had made a lasting enemy of that physician. The physician started to probe, and he passed a probe through into the antrum; the lady told me afterwards that it appeared to be a brass probe. Well, I treated that lady and she became completely relieved of her trouble. I succeeded in relieving what the physician had been treating for neuralgia. The lady was not very wealthy, but she very willingly paid me \$50.00 for my services. I had another case, which came under my notice some time ago, and which had been treated for four years. The second bicuspid had been extracted. When I probed into the socket from which the tooth had been removed, such a discharge of pus was caused that the conclusion I arrived at was that the antrum must certainly be diseased, but on further examination I found that the opening did not communicate with the antrum. I was getting up against the floor of the antrum, and decided that there was such a hard surface to the bone, that there was no trouble in that antrum. I sent the patient away, asking him to call that afternoon, and then on examination I noticed that the lateral was very opaque. I opened and found a very offensive discharge of pus from the



lateral, and saw that the disease had burrowed back through the vault, and was discharging through the second bicuspid, for when I syringed through the lateral the discharge came through the second bicuspid. I extracted the lateral and treated the case and the patient became alright. So I concluded that we must be very careful in our diagnosis, or we are apt to cause considerable trouble, especially in dealing with the antrum.

DR. WILKINSON.—I have not much further to add to what has already been said. In Dr. Allan's discussion he said that he always removed any sequestrum immediately upon observing it. I have read up quite a bit about the matter, and find that it is not always desirable to do so. I think I said a dentist should be able to diagnose these cases (it seems to be the general opinion that I said treat) and then he may turn them over to a competent surgeon to treat them.

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## AN ODONTOME.

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BY SYLVESTER MOYER, L.D.S., D.D.S.,

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Read before the Ontario Dental Society, February 9th, 1903.

What is an odontome?

The definitions given by histologists and pathologists remind the student of the composition of the odontome itself. They present to him a heterogeneous mass of ideas, undefined, crossing, interlacing, nucleated, and more or less normally developed, but taken together are in a state of confusion. It is just so with at least one class of odontomes. A heterogeneous mass of dentary bodies, having all the tissues of a normally developed tooth, but jumbled together in a state of confusion, and yet in which mass is to be recognized a disposition toward the development of dozens or even hundreds of tiny toothlets, each having its own little pulp chamber with dentine and enamel held together by irregular calcific material, or rudimentary cement containing here and there dots of enamel and patches of dentine. One could almost fancy that a charge of compressed air had blown some embryonal cell into smithereens, and that each infinitesimal unit of life, wounded, torn, and misshapen, had again undertaken the function of its parentage, and had succeeded in helping to produce a dental monstrosity, but having in external appearance no indication of tooth form.

A second class of odontomes consists of an aggregation of little teeth, more or less perfectly developed and formed, together with enamel drops and denticles fused into an unshapely mass. To this class my odontome belongs.

The third and only other class of anomalies that, to my mind, partake of the true nature of odontomes, consist of a

follicular dental sac or cyst, filled with numbers of diminutive disconnected denticles and teeth. A most interesting illustration of this third class was to be seen at the Pan-American Exposition in Buffalo. There was on exhibition there a colt's inferior maxilla containing in one pocket or follicular cyst, almost a quart of teeth.

The more I study this question, the more I am forced to agree with Dr. Gilmer that all other anomalies differ from odontomes, in both origin, development, and structure. Other anomalies can always be traced to the germ of the natural tooth, while in the case of the odontome the natural teeth are generally though not always, *in situ*, leaving their origin therefore up to the present quite speculative. The structure too of the odontome shows a tendency toward multiple tooth development, while other anomalies show no such tendency.

With so few odontomes on record, barely a dozen, together with the little attention that has, up to the present been given to embryo dental histology, the origin of so mysterious a production is, if one may judge from the opinion of Drs. Black, Gilmer, Dean, Tiffany, Barrett, and others, veiled in mystery. Whether they are produced, as these authorities suggest, by "remnants of the epithelial cord," that have become revived after their separation from the enamel organ, or by "additional buds given off from the epithelial lamina," or of the "inclusion of the epithelial tissues during fetal development," or are modifications of the tooth germ before being capped by dentine, or from all, or none of these causes, future investigation must endeavor to ascertain.

The diagnosis of the odontome, though in some cases very difficult, is to us most important. The most serious results which have attended mistaken diagnosis have been in confounding it with an alveolar abscess. This mistake may be avoided by testing with a steel probe, connected with the ear by means of a rubber tube. The odontome will give forth a metallic click which necrosed bone never does.

Where did I get my odontome? Six years ago a young man of eighteen requested me to remove a something from his inferior right maxilla. Examination showed the right cuspid to be missing, the other teeth being normal, excepting a rudimentary cusp on the right central. In the cuspid space enamel eminences showed above the gum. These I found to be united in one solid mass, which mass was quite loose and easily removed. The surrounding tissues were apparently in a healthy condition, having attracted neither previous nor subsequent attention. Neither had the strange mass given any trouble, but was presented for removal to make room, as the young man said, for the eruption of a permanent tooth, which he said had never appeared in that space.

The mass appeared to me to consist of a number of small



teeth of cuspid and bicuspid forms. One of these, a perfectly-formed cuspid, one-half inch in length, I, in my ignorance easily broke away from the rest of the mass. This little cuspid I afterward lost. The mass I labelled "an aggregation of cuspids and bicuspids," and I kept it among my dental curios for five years.

When a call was made, a year or more ago, for specimens for our Dental Museum, I forwarded my aggregation. But the memory of that strange mass would not die. I told Dr. Noyes about it, and he, with his superior histological knowledge, at once told me that I had something very rare; too rare to be lost, either to myself or to the profession. "You have an odontome," said he, and with his characteristic generosity and fraternal regard, immediately added, "Get it back, and I shall be pleased to prepare photos and slides for you, in case you will write it up." The perfection of his work in both my photo-micrographs, and those I am about to show you, which he prepared for Dr. Gilmer, of Chicago, will at first glance be evident to all.

As compared with those odontomes I have found recorded, my odontome presents the following similarities and peculiarities: Like all others, it was developed early in life; but, unlike most others, it was situated in the anterior portion of the inferior maxilla. It was not surrounded by a follicular wall; one tooth was missing, and the odontome occupied its place. The little teeth comprising it are of the cuspid and bicuspid types. I shall now ask your attention to the photographs and photo-micrographs so beautifully prepared by Dr. F. B. Noyes, of Chicago, and which I shall now endeavor to explain.

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## DON'TS ON ALVEOLAR ABSCESSSES.

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BY E. G. BELDEN.

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Read before the Toronto Dental Society, March, 1903.

Don't think all abscesses can be successfully treated by local treatment alone; very often systemic treatment is also required.

Don't rush to every new remedy that is brought out as a cure-all in the treatment of abscesses.

Don't be discouraged if an abscess does not yield at once to treatment.

Don't put hot applications or poultices on the outside of the cheek in treating alveolar abscesses.

Don't resort to the heroic method of treating abscesses more frequently than is absolutely necessary.

Don't use instruments in the treatment of abscesses unless they are thoroughly disinfected.

## PROFESSIONAL ETIQUETTE.

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BY C. E. PEARSON, D.D.S., TORONTO, ONT.

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Read before the Odontological Club, Toronto, December, 1902.

In attempting to write on the subject of professional etiquette, it is my purpose to take merely a personal view of our relations to one another and to the public, in an attempt to express in words what we sometimes feel, not knowing why and not knowing whether the feelings are founded upon reason or justice, or whether they are the evidences of eccentricity and probably folly. By such expression, I hope to provoke some discussion and thus clear up the vagueness of thought and correct the errors in action which have resulted from those thoughts.

Our relations may be divided into two distinct classes: First, our relations to members of our own profession, and, second, to the public. But before considering either, it will be well to look at the conditions which establish us as a body other than the public, and to learn to what degree we are the servants of the public, and what obligations we are under to them.

Through the legislature the public have granted us the right and privilege to earn a livelihood by relieving their sufferings, and caring for their interests. We may say that we have a monopoly of a certain means of earning a living. Are we to earn the living first, or are we to serve the public first? Undoubtedly it is the duty of every man to support himself and those depending upon him, but when the professional man is able to do this, does the fact of his being a healer and reliever add to his responsibilities a charitable duty which is not added to the responsibilities of the man of business? Have we not charitable institutions which relieve him of such duties and responsibilities? Yes, we have, but the doctor who refuses to give sufferers the benefit of his knowledge and power without first inquiring for his reward is on a par with, if not below, the business man who refuses to exercise his knowledge and power in giving advice to a friend.

There is this difference between the man of business and the man endowed with the true professional instinct—the former thinks in profit and loss, the latter thinks in health and disease; so that the business man's first consideration is selfish and unsympathetic, while the other is first sympathetic and for the relief of suffering, and afterwards selfish. Thus it is easily seen that the former is not called upon to undertake any transaction which does not add to his personal benefit or income, while the latter has no such choice, but is expected to give his services whenever and to whomsoever may demand them. A man of business, too, is expected to devote his energy directly to the turning of a dollar into two dollars, while the chief aim of the professional man is the



attainment of that superior skill which shall make his services of value to the highest bidder.

Let me illustrate the difference in spirit by contrasting the actions of two men in our own profession:

Dr. Jones is out of town. A lady patient of his, suffering severely, seeks the services of Dr. Smith, who is very kind, relieves the suffering and treats the tooth on several successive days. There is other work to be done, which he refuses to undertake, stating that it will wait until Dr. Jones returns. On being asked his fee, he refuses to take any, remarking, "My professional instincts forbid that I take advantage of Dr. Jones' absence and your suffering to that extent."

By and by, Dr. Smith is out of town, and one of his patients presents herself to Dr. Jones. Before relieving the pain, the doctor remarks, "You need several fillings and a bridge."

"Yes, but I shall wait for Dr. Smith's return."

"But, if I am able to relieve your pain, I am also able to do your other work!"

"Oh, no doubt you are; but I am in pain, and only wish you to relieve me. I have every confidence in Dr. Smith."

"Very well," says Jones, "you must wait for his return. I insist upon doing all or nothing."

"You refuse, then, to relieve my toothache?"

"Yes!"

I leave to you, my readers, the question which of these two men has a conception of professional etiquette, and which is the better citizen.

Let us make the case less extreme, and say that Jones relieves the odontalgia and persuaded the lady to allow him to make the bridge. From a professional standpoint, was his conduct justifiable? If it was justifiable from the business man's point of view, was it honorable from the professional point of view?

Let us look at another case in point. A general practitioner sends a patient of his to a specialist. The specialist considers the case not suitable for his particular specialty, but performs an operation quite within the scope of the general practitioner. What should the general practitioner do to the specialist?

We have in our city a number of ladies' schools, the directorate of which is so business-like that they offer to send all their pupils to a certain professional gentleman, provided he allows them 5 per cent. of the fees he asks. To the annoyance and inconvenience of many other dentists and their patients, the directorate insists on attendance upon "their dentist." What kind of a professional soul has such a man to permit such an insistence. We have no objections to the 5 per cent. arrangement if the patients of other reputable dentists have the privilege of using their own judgment in the matter, but when such an arrangement interferes with the rights of patients to visit their long established family dentist, it seems to me such a breach of the code of

ethics as should strike off the name of any practitioner permitting the annoyance.

It is frequently a difficult matter to refrain from expressing one's disapproval of a confrere's services, and not long ago I had my attention called to a case which was so abominable that I exploded involuntarily, and strongly advised the patient to enter a suit for damages. This he did not care to do, and he has never paid my account I am quite sure I was wrong in offering any advice.

The point, however, is very well worth some consideration. We frequently see patients who have been maltreated by men who have no trace of professional instinct, men who take the savings of the innocent and give little or no return value. It is surely a duty we owe to our own good name and our own hard struggle toward the recognition of dentistry as a profession by the public that such cases as these be exposed and prevented if possible. Would it not be a wise move for a society such as our own to undertake the expense of such a suit in a court of law?

It may be that such rotten dentistry is teaching the public the value of an ethical practitioner, but at what a cost, and a few suits for damages would be better than a four years' course as an educator. It would not only be a warning for the public, but it would weed out a lot of disreputable trash.

It seems to me that we as members of the profession, are culpably negligent of our duty as citizens to permit such vagabondage to be perpetrated upon an innocent and defenceless public. Surely we ought to be the policemen of our own code of ethics.

Coming now to our relations with the public, we may kernel the theme by the little word "tact." But tact is so illusive to him who lacks it, so subtle to him who has it, and withal so much a part of personality or character, or whatever you may wish to call it, that the word is too vague to use without illustration. In dealing with our patients we must have faith, hope and tact, but the greatest of these is tact. It helps you out when you have not faith, and brings success when hope is a fading vision of the human heart. But what is tact? It's a happy combination of truth and "skin game"; it's good horse sense with an occasional bluff; it's knowing when to assume the anger of the god thunder, and when to assume the patience of a painted madonna, while all the time you are as placid as the Egyptian sphinx. Tact is success, is being all things to all men, and still being yourself. And no man needs more than a dentist—first, to obtain patients; then to keep them, and, finally, to collect accounts.

How to obtain patients? Is it sufficient to be a decent, honorable, energetic young man, wrapped up in himself, and the working out of what he thinks the best line of existence? Is it sufficient that a young man furnish an office and sit therein, playing all day long in the plaster drawer? Is it sufficient for him to have six good friends and be true to them, or is it better to stand



on the street corner with a high white collar and shining silk hat and blow a huge tin-horn? These are questions which the young men are answering. May they long continue to do so. For my part, I find gentleness and good service the way for me. At least, I have persuaded myself that that is my best recommendation. I don't believe in carrying my appointment book into the street and to the concert hall.

I am tired of business when I get out, and if I am "tackled" outside, I never know how my appointments are for the next day. This may be bad business policy, but it suits my taste, and is ethical. Of course, one must take an interest in questions asked, and be courteous in reply, but when a man meets you on Yonge Street at mid-day, opens his mouth like a store door and gets his gloved finger on to a molar, while at the same time asks you to "see that," it is just as well not to stretch your neck to "see that," and it is easier to 'phone him when you are at liberty, but it's easier still to forget all about him. But since most of us cannot afford to do that, how is he to be handled?

Is a man to join lodges and clubs and churches for the sake of business, or is he to be interested in so many things which go to make good citizens that he inevitably makes many friends? Still however, a man, to be successful, must have a main issue, must attend to his specialty, must be a dentist before he is anything else. All other issues are supplemental to the main one.

I would like to say a great deal about the holding of patients, but as I have no wish to hold myself accountable for the idiosyncracies of many people, you will excuse me.

The matter of fees and collections is one we might discuss with a great deal of profit. I have no doubt in my mind that we are perfectly justified in having such a sliding scale of fees that we may accommodate the most fastidious of our wealthy patients. A man would be foolish not to permit some of his patients to value his services according to their standard of hotel rates and champagne dinners. Such patients are a great help for rainy days, and one takes a great deal of pleasure serving them; and the larger the account the better they are pleased.

There are systems of records, methods of collecting, and interesting incidents illustrative of the difficulties to be overcome, and the tact to be used, but I fear I have already taken sufficient time, and will close by adding that the practice of dentistry is one of the most exacting mistresses man could desire for the development of sweet, pure temper, love of labor, concentration of mind, and nervous prostration.

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IN cementing the back of joints in gum sections before packing the flask, put the fluid in first, then with a thin excavator work in the powder. The joint will be more completely filled than if the cement is mixed previously.—W. A. BROWNLEE, Mount Forest.

## "PRESERVATION OF SUCH ROOTS AS ARE USUALLY CONSIGNE TO THE FORCEPS."\*

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BY E. A. PEAKER.

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Read before the Toronto Dental Society, October, 1902.

*Mr. Chairman and Members of the Toronto Dental Society:*

It was with some hesitation that I agreed to Dr. Willmott's request to take up Dr. Wilkinson's paper on "Preservation of Such Roots as are Usually Consigned to the Forceps," and give to this meeting, in as brief a manner as possible, an outline of its vital points of interest, the discussions arising therefrom, and also of the impressions conveyed. Knowing that there were other members of our society, who were present at the Montreal convention, who could give a much better report and do greater justice to the paper and the essayist than myself.

Commencing with the last head, the "Impressions," we cannot help but congratulate the essayist on his grand ideals, and also on the success that has followed his efforts in putting these ideals into practical and advantageous use, and the members of this society have every reason to feel proud of their representative on the programme of this, the first, meeting of the Canadian Dental Association.

In his opening or introductory remarks we get some idea of the principles he has laid down and is endeavoring to practise. "To preserve is better than to destroy, provided the thing is good," is a truth we ought always keep prominently before our minds, and if I were to take up each thought and comment upon it, this paper, in itself, would occupy your attention for a whole evening; in fact, I think the society would profit greatly by having the paper read in its entirety. However, without further words, we will proceed to the subject proper, and give you, almost word for word a number of the writer's principal points.

The value of the dental organs, their relation to health, symmetry and comfort, is well recognized, and the essayist has undertaken to tell in what conditions and under what circumstances these valuable adjuncts should be retained or extracted. Keeping well posted on all the latest methods, using them only when thoroughly tried and tested, I found satisfactory, using always old, tested ideas as a sure foundation on which to enlarge.

One good thought that the writer is very emphatic upon is the retention, or "cultivating, if you have not got it," of good solid backbone, doing what you in your own judgment con-

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\* Report of a paper read by Dr. Wilkinson before the Canadian Dental Association, September 16th, 17th, 18th, 1902.



sider best, irrespective of what the patient asks or advocates. Teeth and roots that cannot be restored to usefulness, and, at the same time, be in harmony with the surrounding tissues, ought to be extracted. Exceptions: (1) Where there is no advance in disease; and (2) where they are moderately useful and harmless. Deformity caused by absorption after extraction is very difficult to wholly restore.

The power of mastication is reduced by extraction. Natural teeth, according to Dr. Black's estimate, can produce a biting pressure of 200 pounds, and a good average with artificial teeth does not exceed 40 pounds. The extraction of one molar usually means the loss of two molars for mastication. Patients who will not or cannot afford to pay for professional services, may, by explanation, management and tact, be brought to your way of thinking, and it is much better, even though you miss the fee, to do humane service, rather than a permanent injury. The influence of those who wear artificial appliances is too effective and should be overcome.

An assertion: Ninety per cent. of the teeth and roots extracted could be restored to comfort and usefulness for periods of from five years upwards. Teeth and roots which cannot be saved and belong to the other ten per cent. are divided into the following classes:

1. Those having alveolar abscesses which will not yield to treatment.
2. Those in necrosed or carious bone, which cannot be restored to health, while they remain.
3. Those with excessive absorption from about the apices.
4. Those so frail from decay as to be useless.
5. Certain third molars, malposed, overcrowded, or excessively chalky.
6. Teeth removed in the interest of orthodontia.
7. Teeth permanently loosened by pyorrhea or other causes.
8. Many solitary teeth, where artificial dentures are necessary.

The 90 per cent. proportion which are commonly extracted include the following varieties:

1. Molars with acute, extensive abscesses which could be successfully treated.
2. Teeth, particularly molars, with chronic alveolar abscesses having fistula.
3. Teeth that ache from simple, large cavities, or exposure of pulp—too common a class.
4. Those that ache from diseased pulp or pericementitis.
5. Teeth removed injudiciously for orthodontia.
6. Teeth extracted for replacement by artificial dentures, but which could have been restored or retained, supplemented by partial artificial appliances, or even upon their own responsibility.

7. Teeth decayed beyond the bifurcation.
8. Roots that could be restored by amputation of their apical ends.
9. Roots that, while healthy in their sockets, are frail and broken down below the gum margins.
10. The separate roots of bicuspid and molars which have moderately firm attachments.
11. Roots having accidental perforations to alveolus.
12. Roots with brooches broken off beyond their apices.
13. Roots which have large apical openings and are difficult to manage.

In an extensive acute abscess there is a condition which will subside with the removal of the cause, stimulating and antiseptic care, assisted by nature. Molars are more troublesome and with them more failures. Treatment for an abscess with a fistula, made by a lancet, is much the same as for an abscessed tooth, with a natural fistulous opening. General treatment to lower blood pressure will help; opening canals properly, gentle rubbing and pressure will assist; so will counter-irritants. Only very moderate canal treatment where the tooth is very sensitive to the touch. Palliative agents, such as campho-phenique and menthol are indicated; chloroform and cocaine to afford relief. The canals should be left open until inflammation has somewhat subsided. A tooth or root of this class should not be permanently filled until well tested, and not for four weeks, or three, at least, from time of first being sealed up.

*Treatment of Chronic Abscess with Fistula.*—Open into canal; cleanse with  $H_2O_2$ ; work up to and through the apex with a beheaded Donaldson hook, followed by a Kerr's spiral; pour warm water into the canal with a hypodermic, and out through the fistula. Now load hypodermic with creasote or carbolic acid and force through, protecting the soft tissues; place in a temporary dressing, and on the following day cleanse; flood canal with any good antiseptic agent; dry and fill at once. In a molar, with a probe find which root the fistula is from. If only one, treat as described, and fill that one root. Treat the remaining roots, and fill later, being careful about the antrum.

A roughened or absorbed apical end may be amputated, the tissues being freshened by process of drilling, creasote forced through, and on following day the root filled.

Necrosed and carious bone above or about a root is readily detected by a probe; treat canal, and fill on the second day; further treatment through the fistula. The surgical treatment for necrosed or carious bone of long standing, with fistulous opening, after the filling of the root: explore and examine with probe; with the hypodermic force warm water in and out of the fistula, followed by creasote or carbolic acid. The essayist does not advocate the use of  $H_2O_2$ , as it causes severe pain, and sometimes serious trouble, by getting into sacculus, or occasionally



into the antrum; prefers creasote to carbolic, as the carbolic is hard on soft tissues. Now use a clean, sharp rose bur in engine; insert the bur through fistula, and cut away the undesired area rapidly but cautiously. Next wash the parts with a solution of boracic acid, dilute carbolic or dilute aromatic sulphuric acid. In extensive caries, the wound may need packing with gauze or cotton; if not, it will still require treatment during repair with  $H_2O_2$ , listerine, etc.

Breaking of nerve broaches in the canal, with end protruding through apex, sometimes causes trouble. Treatment: Fill canal and open through alveolus with round bur and remove point.

Filling of roots with large apical openings.—We get here a little idea of the writer's originality. Palatal roots of upper molars, distal roots of lower third molars, imperfectly developed roots and roots with apical absorption. These are very difficult to fill by the commonly-used root-filling materials. Method.—First take a measurement of length by means of a Donaldson hook, with rubber washer. The washer marks the position on broach shank handle, where the hook catches on an attempt to withdraw. The length can be marked on card for further reference. The best, and only accurate, method for filling these roots is by the use of a tin plug. Two sizes of Gates-Glidden drills are used, the smaller going right through the apex; the larger to within 1-16 of an inch of the opening. A similar hole is drilled in a piece of ivory, having a shoulder 1-16 inch from one side. Another hole of the larger size is formed clear through the ivory. By these a tin plug may be drawn that will accurately fill the root canal to apex. About 3-16 of an inch of the end is cut off, then forced to place at apex, and remainder of canal filled or prepared for crown, as required.

Teeth decayed beyond bifurcation will often prove useful and permanent tenants. The canals are treated as indicated, exposed soft tissues properly dressed, then with a layer of tin foil or platinum, and a floor of amalgam over this again, supported by walls of roots, filling being retained by the posts from roots, or undercuts in walls or root ends.

Separate roots of bicuspid and molars, upper and lower, if conditions are favorable, may be used to good advantage. Perforations from canal drills are troublesome, but often amenable to conservative treatment. If the perforation is of recent date, after cleansing, use a soothing antiseptic, as aristol, oil of cloves, and over the opening place a layer of tin foil, against which amalgam is built. If of long standing, more care and treatment is required.

One method of building down roots, where one or more of the walls are gone.—Fill apical opening, screw in a threaded post, build upon the end, remaining portions of walls and

about the posts with amalgam to within 1-16 of an inch of gingiva, the post extending 1-4 of an inch below. A band, cap, and cylinder adapted to root and post, are prepared and soldered together. Then a porcelain crown, fused over this, or a facing ground, backed and soldered.

The ideas and methods thus enumerated, and many others which we have not had time to mention or enlarge upon, have been successfully used by the writer, or essayist, and in his closing words claims that they have originated from his reading, attendance at conventions, society meetings, associations in practice, college teaching and personal experience.

The discussion was opened by another of our members, Dr. Eaton, who, in the absence of Dr. Moore, made favorable reference to a number of points in the paper. Dr. Eaton congratulated the essayist and endorsed his methods of saving teeth in his every-day practice.

Dr. Moore, now arriving, opened his remarks by complimenting Dr. Wilkinson on the originality of his methods. He agreed with the preservation theory, but claimed that there was no uniformity of method of treatment or filling. That in the treatment of abscesses, one thing which was essential was the nearness of patients, many teeth being lost because of the patient being unable to go to the dentist's at regular and stated times. He also advocated the teaching and instructing of our patients, in order that the preservation theory might be more fully carried out.

One of the fathers of dentistry, whose name I was unable to procure, also passed favorable comment, and contrasted Dr. Wilkinson's methods with that of one of the former speakers, who had given the number of times he had administered N<sub>2</sub>O for extraction. The ideal results were worthy of imitation.

Dr. Brownlee was impressed with the high ideals of all the essayists, and spoke of the value of reading and studying; that no matter how long a man had been in practice, he might still keep abreast with the times. Differs somewhat in the length of time an abscessed tooth should be treated before filling. Thinks the time should be extended, but agrees in thorough disinfection before using Gates-Glidden drills in putrescent roots.

Dr. Willmott, cousin of Dr. Walter, asked for a repetition of Dr. Wilkinson's method of filling accidental perforations.

Dr. Moyer did not see why the time should be extended for the filling of roots in the case of a blind abscess. When the roots were put in a perfectly healthy condition, nature would do the work in the soft tissues.

Dr. Price, of Cleveland, gave as his opinion that a good deal of infection was carried into the roots by root canal instruments, and, at Dr. Eaton's request, gave his method of overcoming infection carried by cotton wrapped around the broach with the fingers. Do not leave cotton exposed for any length of time,



but use fresh medicated cotton, and advocates the use of sterilized paper points. Dryness of canal should be always aimed at.

Dr. Wilkinson, in reply, expressed his pleasure in the general spirit of the discussions, but was a little disappointed in their not being more antagonism shown to his methods and treatment.

Dr. Wilkinson had also brought a number of specimen cards, which the members would have an opportunity of seeing.

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## LITERARY CULTURE IN THE LIFE OF A DENTAL SURGEON.

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BY M. P. CORRIGAN, TORONTO.

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Read before the Royal Dental Society, February 3rd, 1903.

*Mr. Chairman and Gentlemen,*—My excuse for reading a paper is this: A few months ago I read for the first time the famous "Message to Garcia," by Elbert Hubbard, editor of *The Philistine*, a magazine published at East Aurora, N.Y. It impressed me so much that I determined to read it before this society. I concluded that because within three years of the time it was written, that it had been translated into nine different languages, and printed over sixteen million times, that it was worth reading, and I feel sure that you will agree with me. Having thus decided to read the "Message," I told your president, Dr. Garvin, that I would give a paper on the subject I have chosen, and afterwards read Elbert Hubbard's article. I will, therefore, read my own paper first.

Dentistry is a comparatively new profession, but one that has made great progress in the past few years. It is considerably less than a score of years ago that our profession became recognized to such an extent that Toronto University granted our college affiliation, and provided a course leading up to a degree. Since then we have made rapid progress, and our course has improved so much, that to-day the course in dental surgery is so complete and comprehensive that we have no reason to blush when we compare our curriculum with that required in law, medicine, or engineering.

But it is the duty of every dentist and of every dental student to endeavor to raise and uphold the standard and dignity of our profession in every way possible. It is not particularly well known amongst the students of other colleges that we receive such a thorough and scientific course, and it is the duty of every man here to make plain to such that our course is not one whit inferior to theirs. We belong to a profession of which we may well be proud, and let us endeavor to place it on a level with the best.

At this juncture let me ask if it would not be advisable to make the matriculation in dentistry identical with that required in medicine by the Ontario Medical Council. While I recognize the fact that most of our men take the full junior matriculation examination, still the junior leaving with Latin is accepted in dentistry, but it is not in medicine; two languages at least being necessary for matriculation in the latter course. I would like to hear this question discussed by the students and the members of the profession.

But let me assure you, gentlemen, that the profession does not make the man. It is the members of the profession who give the profession its standing. We have seen men digging ditches who did their work in such a kingly manner, and with such natural dignity, that we never thought of their work as being menial. Whatever they did we were bound to admire. A man can be a true gentleman, no matter what his work is, so long as it is honorable, and done honestly. If we expect our profession to be recognized as worthy of the name, there are certain fundamental principles that we must bring to it. Chief among these is culture. It is not enough that we receive a first-class preliminary education prior to our being permitted as matriculants to enter college; it will not suffice that we receive a splendid course covering four years in college training; nor that our hockey and football record is a creditable one; nor that we receive a degree from the university. If we do not bring to our work a true culture born of our inheritance, or brought into being through cultivation, I do not care how skilful we are in our profession, nor how successful we are financially, we have not done much to elevate the true professional spirit in our work.

Now, the term "culture" is a suggestive one, and it would be hard for us to define it, but it must include knowledge, wisdom, gentleness, usefulness, and probably, above all, thoughtfulness. To be cultured means to possess a liberal education, and among the ancient Romans, a liberal education was one given to a free man, in contradistinction to the education of a slave. A slave's education simply fitted him for making a livelihood. Thus if we are liberally educated, we will possess much knowledge outside of that pertaining to our every-day work. Again the truly cultured man is he who never thinks of himself as being cultured. It has been said by Thoreau, "I know of no more encouraging fact, than the unquestionable ability of a man to elevate his life by a conscious endeavor." Now, if each one of us can elevate his life in this way, in a like manner shall we be able to raise the dignity of our profession.

We have all been astonished, and perhaps caused to blush, at the apparent lack of culture and refinement of men in professional life. It should not be thus. Our position demands something better of us. I will not deny that a man can amass



money in dentistry, and still lack culture (and if money is our chief aim in life, why then, that is sufficient), but I will affirm that no one but a truly cultured man can have much influence in raising the dignity of our profession.

Now, there is probably no one way that we can better accomplish this end than by becoming conversant with the literature of our own language. We do not mean simply to read a few books in a casual way, or to be familiar with the names of a few authors, but we should endeavor to read the best, and get a grasp of what we read. The man who can converse with ease and intelligence on literary topics can always maintain a mental poise that would otherwise be foreign to him. An intimacy with the best authors means an acquaintance with the most important subjects in past and present times, and this has the never-failing result of broadening our sympathies and extending our influences. Literature is but a record of the evolution of the human race, and the accompanying changes attendant on this evolution, and with this we should all be familiar.

You may ask what advantage this literary culture will be to a dental surgeon. Well, we have already hinted at the answer to that question, and we can all readily see that no matter how well we know our own work, we can know it still better by an acquaintance with something entirely outside of our prescribed course. You may ask, "What shall we read and how?" Our answer for that will not be definite, but one statement we will make, and it is this: Don't let us be afraid that we can ever be contaminated by anything we read, so long as we read it with the true spirit of enquiry. Read something of every subject, and by every author. Now I know that we cannot do this, but I mean that we should read in such a way as to produce a broadening effect, and with a determination to believe nothing what we read unless we can read some logic into it. Thus, if we are to have the true educational result in mind, we must *think for ourselves as well as read the best authors*. Our tastes will largely decide the bulk of our reading, but nevertheless we must be guided by critics, and we must read the authors they choose. For instance, every man will not be a great student of Shakespeare, but every man should read much of Shakespeare, simply because he was not only England's greatest author, but the greatest author of all time, and admittedly produced a greater influence than any other Englishman.

Other English authors may be mentioned, not in the way of an exclusive list, but simply as they occur to us to be representative. We may name Milton, Johnston, Wordsworth, Goldsmith, Scott, Byron, Burns, Thackeray, Moore, Dickens, Eliot, Arnold, Carlyle, Ruskin, Darwin, Tennyson, Keats, Browning, and many others, which we may choose. The greatest of all great literary critics, Matthew Arnold, a few months before his death in 1888, delivered a lecture in New York, in which he stated

that of the prose writers of the nineteenth century, Carlyle and Emerson had exerted the greatest influence on the English-speaking world. Of the two, Emerson's influence he considered the greater. And yet, gentlemen, it is a deplorable fact that we meet very few professional men who could tell you what Emerson has written, and as for Carlyle, they know of him only in some indefinite way as a great writer,—hard to understand. The same is true of Browning, the poet of the nineteenth century who has exerted the greatest influence.

A few weeks ago I read in *The Outlook* the opinions of ten literary critics as to what ten books written by American authors were most characteristic of the American people,—books that could not have been written in any other country. To test our knowledge of American literature, we should examine the list, and if we are not already familiar with these works, we should change our line of reading. I shall name twelve, and most people who in their course of reading have read these twelve books have read many others, and you may be pretty nearly right in conjecturing that they have a fairly good grasp of American literature. Here they are:

"Essays," Emerson; "The Scarlet Letter," Hawthorne; "Leaves of Grass," Whitman; "Walden," Thoreau; "Biglow Papers," Lowell; "Poems," Poe; "Luck of Roaring Camp," Bret Harte; "Hiawatha," Longfellow; "Rise of Silas Lampman," Howells; "Pioneers," Cooper; "Tramps Abroad," Mark Twain; "Snow-Bound," Whittier. Let me add another author to this list. To those of us whose tastes take us to the woods and fields, the name of John Burroughs will be familiar. He will help us to while away many a lonely hour, and along with Henry David Thoreau will furnish us with a veritable panacea for over-wrought nerves after the weary hours of office work. Of the English authors every one of us should read John Ruskin. None of us can read his "Queen of the Air," without becoming a better dentist, and a more noble man. We should also acquaint ourselves with the Greek and Roman classics, of which we will find many splendid translations.

And last and probably all-important, we must study the literature of our own dear Canada. It is still necessarily in its infancy, but we will find many writers who deserve our careful perusal, and at least a few bards who sing with unquestionable power. I shall name none; we can choose for ourselves, but I feel sure that a study of the literature of our own country will elevate our lives and inspire us to nobility of thought and action.

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SOAKING the lower part of a flask in water for a few minutes before you fill in the upper half will entirely prevent air bubbles in the plaster. Try it.—W. A. BROWNLEE, Mount Forest.



## “THE TECHNIQUE OF THE OPERATION OF FILLING A CAVITY WITH GOLD.”\*

BY WALLACE SECCOMBE, D.D.S., TORONTO.

Read before the Toronto Dental Society, October, 1902.

*Mr. President and Gentlemen,—*

Had I known what a terse and concise writer Dr. Johnson is, I fear I would have hesitated, before undertaking to write a synopsis of his paper. The subject of Dr. Johnson's paper was: “The Technique of the Operation of Filling a Cavity with Gold.” Strictly speaking, the preparation of the cavity is not included in this subject; however, there were a few incidental references in the paper to cavity preparation, which I herewith tabulate:

*The Cavity Selected.*—Proximo-occlusal, in a molar, one which reaches from the gingival line, on the proximal surface, over into an anchorage step on the occlusal surface.

*The Preparation.*—(1) The gingival wall should be flat, not curved, joining the buccal and lingual walls at right angles. (2) A distinct angle where the axial joins the gingival, buccal, and lingual walls. (3) A sharp pointed angle in the gingivo-axio-lingual and gingivo-axio-buccal corners of the cavity. (4) The step should be flat, and should join the surrounding walls at right angles. The essayist did not discuss the advisability of using sponge, crystal or deposit golds, but rather confined himself to gold foil, on account of this form being used more than any other.

*Should we use cohesive or non-cohesive foil?*—The essayist deprecated the fact that so little non-cohesive foil was used, and attributed this fact to (1) its possibilities being not fully recognized; (2) its manipulation being not well understood.

*The Advantages of Non-Cohesive Gold.*—(1) It is built up in much less time, and with less energy than is cohesive. (2) It is more readily adapted to walls of cavity. (3) It can be condensed in much larger pieces than cohesive, with less danger of bridging over spaces, thus forming air-holes.

It was not claimed that non-cohesive foil should be used universally, for in extensive contour operations, we are obliged to use a certain amount of cohesive gold to obtain the best results. However, non-cohesive gold should always be used for *starting a filling and may be continued with advantage for one-half, or even two-thirds, of the filling.* More satisfactory results are thus obtained by a combination of cohesive and non-cohesive foils, than by the exclusive use of either.

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\* Report of a paper read by Dr. Johnson before the Canadian Dental Association, September 16th, 17th, 18th, 1902.

The essayist entered a strong plea for a filling of uniform density, without air spaces, and disapproved of a haphazard method of stuffing cylinders into a cavity. Non-cohesive gold does not suffer as much in this regard as does cohesive, because the very lack of cohesion allows the layers of foil to slide past each other and settle down into a more intimate relationship; whereas in cohesive foil there is a sticking together of the layers, with no subsequent movement under pressure.

*Shall we condense with mallet or hand pressure?*—Where direct mallet impact can be secured, it gives concentrated condensing power greater than is possible with hand pressure, and, therefore, should be used. However, both mallet and hand pressure must be employed for best results, as there are certain conditions where direct force cannot be employed and we then resort to hand pressure. Dr. Johnson's plugger is the left arm of his lady assistant. He thinks this much preferable to the automatic.

*Technique of manipulation of non-cohesive gold.*—There are two principal methods of preparing non-cohesive gold for starting these fillings: one in the form of ropes, and the other in the form of cylinders, or pads. If a rope is used it may be made from a sheet of No. 4 non-cohesive foil, using a third, a half, or even a whole sheet, as the area of the gingival wall may suggest. The thickness of the rope should in all cases be great enough to extend from the axial wall well over the gingival margin of the cavity, when laid on its side along the gingival wall. When the rope is twisted, it may be cut into suitable lengths for the case in hand, usually from three-fourths of an inch to an inch. With a mass of non-cohesive gold of this size, these fillings may be started, and the gingival third built in a relatively short time. The *modus operandi* is to grasp the rope with strong-pointed pliers, about four or five millimeters from one end, and carry this down into the gingivo-axio-lingual angle of the cavity, and then fold the rope over and over along the gingival wall, toward the buccal wall. If the rope reaches entirely across the gingival wall from lingual to buccal, it should be partially condensed before another rope is added, but if it does not extend to the buccal wall it should be merely tucked up into the gingival-lingual angle with the pliers and another rope wedged into the gingival-buccal angle. When the gingival wall is completely covered with gold, a plugger having a stiff shank, and a serrated end, as broad as the mesio-distal width of the gingival wall, should be used with hand pressure to drive the gold snugly against the gingival wall, and into the gingivo-lingual and gingivo-buccal angles. There should be very little manipulation of this non-cohesive mass of gold, and no attempt made at perfect condensation till later in the operation. The aim should be to force the gold against the walls of the cavity at several



points with strong, vigorous hand pressure. The manner of applying this pressure is of some importance relative to the effectiveness of the work. The plugger should be given a rocking motion, the end of the handle describing the short arc of a circle, with a *quick wrist movement of the operator*. This has two objects: it carries the gold ahead of the plugger point into every possible irregularity of the cavity, and it leaves the gold firmly sealed in the cavity, so that it will not be withdrawn when the plugger is lifted away, as is so frequently the case where a straight thrust is used. The rocking of the plugger forces the gold laterally away from the sides of the shank, and leaves the plugger entirely disengaged.

"The object of having a broad-ended plugger is to avoid penetrating the gold, and chopping it up, thus destroying its integrity and interfering with its condensation. The broad plugger carries the mass ahead of it, and does not puncture it. The reason that too much manipulation of the gold should be avoided is that it also has a tendency to disintegrate the gold, and it leaves a surface to the non-cohesive gold unsuitable for the attachment of fresh gold to it. One of the reasons why more non-cohesive gold has not been used in the past, in these fillings, is because of the difficulty operators have had in making cohesive gold adhere to it, and this is often brought about by over-manipulation of the non-cohesive gold. The surface should be left with uncondensed areas, into which the cohesive gold may be wedged, and the mass locked together by an interlacing of the layers of the two forms of gold. If this is done, there will be no difficulty in attaching the first pieces of cohesive gold, and no subsequent separation of the mass at this point."

The amount of non-cohesive gold to be used depends upon the extent of the filling. The whole philosophy of successfully managing non-cohesive gold is on the principle of wedging.

"The next step in the filling is to begin the use of cohesive gold. A well annealed cylinder of sufficient width, so that when laid upon its side it will reach well across the gingival wall mesio-distally, should be carried to the gingivo-axial angle, with its ends looking buccally and lingually, and this should be wedged by hand-pressure into the structure of the non-cohesive gold in the direction of the angle. After it is thoroughly incorporated into the mass, another cylinder should be laid a little further along, toward the buccal wall, in the same way, and this continued until the cohesive gold reaches to the buccal wall and is locked between this and the lingual wall. The entire mass should then be thoroughly malleted to place with heavy mallet force, using the cohesive layer as a medium through which to gain complete condensation of the non-cohesive gold lying under it. The case is now fairly started, with a cushion of non-cohesive gold covering the gingival wall, and protecting the gingival enamel margin, while a cohesive layer lies over it

against which to build the succeeding pieces of gold. The filling should then be continued along this line, until the floor of the occlusal step is reached.

"The point where the proximal portion of the filling joins the occlusal portion is important, in view of the stress which usually falls upon this region, and also because great strength is needed here to securely lock the filling into the cavity. To this end, the cylinders should be so placed as to gain the greatest possible strength to given bulk, and this may be done by laying them on with their ends looking mesially and distally, in such a way that the layers of foil constituting the cylinder shall be continuous from the proximal portion of the filling over on to the step portion. The first cylinder should be condensed solidly on the gold already in place, and the free end, which laps over into the step, should be driven well into the angles between the floor of the step and its surrounding walls. The next cylinder should be carried a little further along in the step, but still lapping the condensed gold, and this should be continued until the termination of the step is reached. In this way the filling is locked together in the strongest possible manner, and with the least danger of air spaces being left in the substance of the filling. As the filling is nearing completion, the aim should be to maintain an even surface, and the cylinders should be laid flat on their sides, so as to receive the full mallet impact throughout the entire structure.

Dr. Johnson asked that two points be kept particularly in mind: (1) *The enamel margins*.—Build on a slight excess of gold, and condense, and burnish very thoroughly. (2) *The contact point*.—Give it more than the ordinary amount of malleting; in distal cavities, especially, use a matrix, so that the contact point can be well condensed without harm to the opposing tooth. If the gold has been properly built on, very little trimming is necessary, which is accomplished in the ordinary way, with strips and discs. In polishing the gingival portion, insert the strips from the buccal aspect, so that the contact point will not be cut away, and then adjust a separator, when a slight space may be gained, so that a very thin strip may be slipped past the contact point. This strip should be of fine grit and rather wide—the object being to merely smooth and round the gold at the contact point.

The paper was well received, and Dr. Johnson was highly complimented by those present. The pretty remarks, however, seemed to make the essayist feel ill at ease, for in his reply Dr. Johnson remarked that he would much prefer having the points in his paper assailed.

Dr. Magee, of St. John, in opening the discussion, advocated very strongly the use of non-cohesive gold and the use of a matrix in all approximal cavities, whether mesial or distal. Dr. Magee raised the old question of "extension for preven-



tion" by objecting to Dr. Johnson's method of making the gingivo-buccal and gingivo-lingual angles, right angles, claiming that such a shaped cavity weakened the buccal and lingual walls, especially in teeth of the nervous type.

In reply, Dr. Johnson claimed that with a perfectly flat base there could be no lateral pressure under mastication, and that by rounding the angles, the "wedge-shape" was approached, and the tendency would then be toward wedging, and, consequently, lateral pressure on the buccal and lingual walls.

At a subsequent session, Dr. Ottolengui pointed out that, while the rounded angles did approach the wedge-shape, yet as its apex was resting on the solid tooth, it would be quite inoperative during mastication, and, furthermore, even though the cavity was prepared in *perfect wedge form*, the seat would absolutely prevent the filling acting as a wedge under the stress of mastication.

The discussion was left at this very interesting stage, and we all were disappointed that Dr. Johnson had not an opportunity of replying to Dr. Ottolengui.

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## "SHOULD CHILDREN'S PERMANENT TEETH BE FILLED WITH GOLD?"\*

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BY H. E. EATON, D.D.S., TORONTO.

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Read before the Toronto Dental Society, October, 1902.

In presenting the subject, "Should Children's Permanent Teeth be Filled With Gold?" Dr. Ottolengui referred to a criticism made at Asbury Park, where he read a paper on the same subject, viz, that he "had merely been threshing old straw." In answer to, this, he says that during the years of his practice he has not seen an article written on the filling of children's teeth where the author advocated the almost exclusive use of gold. "And it is because of this," he goes on to say, "coupled with the fact that I will argue for such utilization of gold, that I had supposed that I was at least starting an old argument on new lines."

In answer to the question involved in the subject of his paper, "Should Children's Permanent Teeth be Filled With Gold?" he stipulates:

1. That the circumstances of each case, including the control of the patient, and the proper management of the cavity, must afford opportunity to insert a perfect filling.
2. That the demand for gold is imperative only in initial cavities, the pulps being alive and in a state of unimpaired health.

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\* Report of a paper read by Dr. Ottolengui before the Canadian Dental Association, September 16th, 17th, 18th, 1902.

3. That the need of gold is lessened in proportion as the encroachment reaches or destroys the pulp.

Now, without one is prepared to admit that the very large proportion of cavities in children's teeth that come to us for treatment are initial cavities, it would seem that the doctor's position is a little hard to define. Initial cavities, he says, should always be filled with gold when the circumstances will permit of the work being done perfectly. If not then pink gutta-percha, or, in rare cases, oxyphosphate; but amalgam—never. The difference in the structure of the teeth, he claims, does not warrant a departure from the rule of filling them with gold.

He believes that the only material which will save soft teeth is gold.

The argument advanced by some, who claim that soft teeth should not be filled with gold, but with some plastic filling until they become more dense, he deals with in the following way:

"The lack of density of tooth substance is of two-fold character. The softness may be of the dentine, or it may be of the enamel. Lack of density of the dentine may be overcome with advancing years, the dentine being a product of the pulp. But this has no relation to the permanence of a filling, as recurrence of caries can only reach it through a defect along the filling margin. Therefore, the question of softness of dentine must be ruled out."

Now, as to the softness of the enamel. While he admits that the enamel of one tooth is superior to that of another, he does not admit that poor enamel improves with advancing age. It is a finished product when we deal with it. Consequently, as good cavity margins, and as good a gold filling, can be placed against such structure at the outset as after any time of waiting.

He claims that nothing is permissible in the anterior teeth of children except gold, and says the common practice of placing gutta-percha or oxyphosphate in approximal cavities in the anterior teeth, he considers most reprehensible. That, in ninety per cent. of all cases so treated the final filling of gold is larger than if inserted at the first treatment of the cavity.

Passing from the anterior to the posterior teeth, he admits that amalgam has its place, even in children's teeth, but he makes the statement that, excepting a limited few, who use amalgam intelligently, it is used in the mouths of children for one of three reasons, viz: (1) As a means of doing cheap work; (2) because it seems less difficult; (3) because, not being fond of children, the operator is either indeliberate or incapable of doing thorough work, and an amalgam filling, inserted under such conditions, is never a good amalgam filling.

He meets the argument of those who advocate the use of amalgam as a means of doing cheap work, by showing that if the cavity is properly prepared the same as for a gold filling, the amalgam, carefully inserted, with the dam in place, as it should be, the patient dismissed to return at a subsequent sitting



to have the filling thoroughly polished, the cheap filling has taken about as much time as a gold filling, which could be inserted and finished at one sitting. In regard to the other reasons for resorting to amalgam, he says those who dislike to work for children, or those who select amalgam as an easy method, in the first case, should never be permitted to practise on children at all, and, in the second, are not likely to achieve successful results, since true success is never reached in dentistry along an easy road.

His use, then, for amalgam in children's mouths is confined to large cavities, especially in pulpless teeth, where the child would not be able to submit to so long an operation as would be required to insert an all-gold filling.

His method of preparing and filling initial cavities is as follows: The sulci, in the main, being undecayed, the very smallest burs are used, and the cavities are cut to the extremes of the sulci, but as narrow as possible, to thoroughly remove infected material, and provide for retention. He then builds up the entire concaved portion of the occlusal surface, so as to render the filling much too high. In polishing, the cutting is carefully done, to accommodate the occlusion, without removing more of the gold than is absolutely necessary for that purpose. Thus the filling appears as a broad diamond-shaped mass, instead of a gold cross, as would appear if only filled even with the cavity margins.

He claims for this method that the margin of the filling being comparatively distant from the true margin of the cavity, which it overlies, the stress of mastication only makes it the more protective of the weakest part of the tooth, the point where we look for recurrent decay.

Referring again to pink gutta-percha, he says: "I consider it a temporary filling, but I also count it the most reliable of all temporary fillings." He values it for its reliability, as excluding caries, and its temporary character. Its reliability renders the tooth safe while it is in place, and its temporary character causes the early return of the patient for the final operation with gold.

He closes his paper with the following statement: Amalgam should never be used in initial cavities of decay, and is the resort of necessity rather than of choice. The treatment of the bicuspid must be the same as for the anterior teeth, and the filling of the anterior teeth, more especially the incisors, with oxyphosphate or gutta-percha, I would consider an abominable practice, which sooner or later will be abandoned by all who aim to achieve the best in dentistry.

It may be noted that the essayist has not touched upon the matter of thermal changes and their effect upon the pulp, in using gold in children's teeth. Some operators limit the age at which to place gold fillings, to eighteen years; some sixteen, and others fourteen.

## HURD'S NITROUS OXIDE INHALER AND SOME OF ITS USES.

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BY W. J. BRUCE, D.D.S., TORONTO, ONT.

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Read before the Odontological Club, Toronto, March, 1903.

The Hurd N<sub>2</sub>O Inhaler is probably too well known to require any lengthy description, as I am well aware you are nearly all familiar with its use. It simply consists of a small rubber hood, being placed over the nostrils, and held in place by an elastic band around the head. In this hood or inhaler is a valve through which the patient may receive a certain amount of atmospheric air, while the gas is being administered.

For a number of years the theory advanced by many experienced anesthetists was that a patient must not have any air during the administration of N<sub>2</sub>O. As far as I have been able to learn their reason was that the patient became excitable, and in many cases unmanageable. This theory is not borne out in the use of Hurd's inhaler, as the patient cannot help but receive air when it is being used. My experience has been that I have had more excitable patients with the use of the old style inhaler than I have had with the one I am now using. I have used it a number of times, and have also witnessed several administrations by others, and I have only seen one patient become excited beyond control. Remember, I do not wish to convey the idea that you will have perfect success every time you use this apparatus, and just here I would say that it should not be thrown to one side and condemned because you have been unsuccessful in a few cases. The failure to secure anesthesia may not be the fault of the inhaler. It may be your own, or it may be the fault of the impure gas. We do not purchase many cylinders of gas which are absolutely pure. Then, it requires experience to use it properly. The cylinder valve should work perfectly, and the gas should flow continuously without any jetting. With pure gas and a good cylinder, you will have no difficulty in keeping your patient anesthetized for any length of time, necessary for the ordinary operations you may desire to perform.

*Where you may use the Inhaler.*—Extraction, or the jerking of stumps, if you choose: with the ordinary inhalers heretofore in use, the great difficulty has been to keep a patient anesthetized long enough to accomplish the desired result. From one to two minutes is about the usual time you could have your patient under control, and in this time you would in all probability be called on to do ten minutes' work. The result would neither satisfy the patient nor yourself. By the use of this apparatus, you are enabled to take your time, and not have any fear of bad results.

*Removal of Pulps.*—This is probably the most difficult



of all operations you will be called upon to perform, and you may not meet with success in every case; but, if you will persevere, you will be well repaid for your trouble. You can save a great deal of time, and will, in nine cases out of ten, be successful. For this operation you may use the rubber dam without any inconvenience, and you will gain time by doing so.

*For Excavating Sensitive Dentine.*—I know of no other anesthetic, either local or general, that will take the place of N<sub>2</sub>O administered by this method. For lancing an abscess, amputating a root, or, in fact, any operation about the mouth where you may desire to use an anesthetic, you may combine the use of chloroform and N<sub>2</sub>O, or ether and N<sub>2</sub>O, if you wish. Either of these will intensify the action of the gas, and I have never had any bad results from the combination. In my practice I prefer the use of N<sub>2</sub>O, as I consider it the safest of all anesthetics.

When using this inhaler do not be in a hurry to perform your operation. Take your time, and do so with all confidence, as you will not have any cause to fear the result. I have not had much time to prepare this paper, and there may be many valuable points that I have overlooked, which I hope will be brought out in the discussion.

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### "DENTISTS IN THE ARMY."\*

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BY J. E. WILKINSON, TORONTO.

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Read before the Toronto Dental Society, October, 1902.

The doctor has evidently taken an enthusiastic and practical interest in the matter, in inquiry, investigation, correspondence and personal interviews, for which he deserves credit. Initial action by the Eastern Ontario Dental Association was referred to. Dr. Bower stated that he had practically had a committal from Colonel Neilson, Director-General of the Army Medical Corps, that if a workable scheme for an Army Dental Staff were presented, it would be adopted by the Department in the course of time. Reference was made to the status of the dentists in the Army of the United States. Dentists in the army do not hold rank, even as commissioned officers, but by courtesy are allowed to wear uniform of lieutenant, the ornaments of which must be in silver—instead of gold. The pay, however, is quite respectable, and the requirements for qualification are exacting.

Dr. Bower pressed for action by the Canadian Dental Association. A live discussion on the paper and its subject was taken part in by Drs. H. Abbott, of London, McInnis, of Bran-

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\* Report of a paper read by Dr. Ira Bower before the Canadian Dental Association, September 16th, 17th, 18th, 1902.

don, Wells, of Quebec, and others, which had to be limited for want of time. We were delightfully surprised to find an intensity of interest in the matter, from personal conversation, which Dr. A. E. Webster and others engaged in with dentists of Nova Scotia, Quebec and Ontario. Dr. Wells, of Quebec, who has a large practice, was not only willing, but anxious, to leave it if he could secure an appointment to accompany troops to South Africa.

Dr. Bower moved the following resolution, which was carried:

*Resolved*, That the members of the Canadian Dental Association favor the adoption by the Militia Department of provision for a regular Army Dental Staff, which shall be a distinct branch of the service, the members of which shall hold rank, as the general surgeons; and, that this association appoint a general committee, consisting of two representatives from each Province and the Territories, such representatives to be members of dental associations within the Province, and where more than two dental societies exist, an additional member be appointed from each additional society; and, that the nomination of these representatives be left in the hands of the Nominating Committee; and that this general committee appoint a central sub-committee. The following committee was appointed:

Ontario.—Wilkinson, Toronto; Kinsmore, Sarnia; Bower, Ottawa.

Quebec.—Wells, Quebec; McKenna, Montreal; Dr. Alfred Stevenson, Montreal.

Nova Scotia.—H. Woodbury, Halifax; Fluck, Halifax.

Manitoba.—Clint, Winnipeg; Matheson, Winnipeg.

New Brunswick.—Murray, Moncton; Moore, St. Stephen.

Prince Edward Island.—Bagnell, Charlottetown.

British Columbia.—

Territories.—Jameson, Edmonton; Keown, Edmonton.

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## DON'TS ON ALVEOLAR ABSCESS.

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BY MALCOLM W. SPARROW, D.D.S.

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Read before the Toronto Dental Society, March, 1903.

Don't let your patient run away with the idea that the tooth is ulcerated. Explain the difference between an *abscess* and an *ulcer*. So many patients have ulcerated teeth that it will take generations of time to correct this erroneous belief.

Don't use pyrozone, or peroxide of hydrogen in an alveolar abscess unless there is a fistula through which you have secured a good opening. If there is not a proper outlet, the rapid effervescence of these remedies will cause great swelling, attended



often with an increase of pain. These remedies act upon blood almost as rapidly as upon pus. To inject them into a blind abscess is dangerous.

Don't resort to the forceps until all other treatment has failed—providing, of course, that the patient does not insist upon immediate extraction. The old heroic method of extraction and replantation is a fallacy. If you extract at all, consign the tooth immediately to the ash box, and the patient will be better satisfied. To extract for the purpose of asepticising an abscessed socket, and then replanting the tooth, with the hope of restoration to even a comparatively normal state, will subject the patient to a torture which the result of the operation will not justify.

Don't forget that good, old-fashioned beechwood creasote if properly used, will do more to cure an abscess than any other remedy. It breaks up the walls of the pus sac and fistula, and promotes granulation. Carbolic acid should not be used in this instance, because it coagulates albumen and causes sloughing. To use creasote to advantage, discard the syringe, and pump the remedy through the canal of the tooth until it appears at the fistulous opening. You can do this in two ways: (*a*) By twisting cotton about a root canal broach, so that it will work like a piston in the root canal, then saturate the cotton with creasote, and pump it in; (*b*) by inserting a saturated pellet of cotton into the pulp cavity of the tooth, placing over this a piece of unvulcanized vulcanite, and compressing it with a ball burnisher. In this way you can force any medicinal fluid through the smallest canal with very little trouble. Always use a napkin to guard the mucous membrane of the mouth and lips. One application of creasote in this way will often prove sufficient to establish a permanent cure.

Don't fail to make an outlet immediately for the egress of pus, either by lancing or by opening up the pulp canal. There have been some fine-spun theories against lancing an abscess, but in the name of common-sense why not lance? Nature is doing her best to get rid of an accumulation of poisonous pus, which, if conveyed through the system in the process of resolution, will prove detrimental to the patient's health. If we assist nature with the bistoury, we give immediate relief, and hasten the cure. Therefore, lance whenever the abscess is "ripe." In deep-seated abscesses, the application of a piece of fig or raisin, as a poultice, directly over the sorest spot, will draw pus to the surface and prevent an abscess from pointing upon the face, causing the abscess to "break" and discharge to your satisfaction. Lancing upon the face would be decidedly objectionable.

Don't over medicate. Remember that time is a great adjunct in the treatment of an abscess, and over-medication retards the process of granulation. If the pus sac and fistula—in case there is a fistula—have been well drained, and flooded with the proper medicinal agent, an intervention of several days should follow

before the patient presents for further treatment. In nine cases out of every ten the abscess and fistula will have disappeared, or else will show a marked improvement, and all that may be necessary is the changing of the dressing in the pulp cavity of the tooth. Sympathetic squeamishness on the part of the operator is conducive to failure. Know exactly what you wish to do, and then *do it* with as much gentleness as is consistent with the requirements of the operation. Considerable pain may prevail, but after you have established a permanent cure, the patient, in all probability, will feel grateful enough to remunerate you without reluctance. If he or she does not, then surely somewhere in the composition of human nature there is a miserable flaw.

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## Clinics at the Ontario Dental Society.

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### TIN AND GOLD FILLING.

BY P. P. BALLACHEY, BRANTFORD.

*Cavity.*—A disto-occlusal one in lower second bicuspid; pulp devitalized; root canals filled; teeth had been well separated by means of base-plate gutta-percha.

*Cavity Preparation.*—Trimmed off all frail walls, extending cavity lingually and buccally, that these margins would be self-cleansing.

*Cement Step.*—This was inserted to fill pulp chamber and to restore cavity to proper form.

*Matrix.*—A piece of stiff German silver, about gauge 30, cut according to size and shape of cavity, and so bent as to fit the contour of the tooth. It was then forced between the teeth and held firmly by means of an orange-wood wedge.

*Preparation of Tin and Gold.*—A sheet of S. S. White's Globe tin foil, laid on a sheet of cohesive gold foil. These are then cut into four strips (more or less, according to size of rope desired). Each strip is then folded with tin inside, three or four times; then twisted in figures, to prevent their falling apart when being inserted. These ropes are then cut to desired length, and packed into place with sharply serrated pluggers, using hand pressure, and plenty of it. Tin and gold are used till the top of the step is reached; then the remainder of cavity filled with Watts' crystal gold, it being easier to start on the tin than gold foil.

*Advantages.*—In large cavities, much time and material may be saved. It can be inserted in many difficult cases where gold could not be used. Chemical action of tin is beneficial in tooth preservation.



## AN EASY METHOD OF MAKING SOLID GOLD DUMMIES.

BY W. CECIL TROTTER, TORONTO.

1. Cover the concave surface of the metal disc (which accompanies Millett's system) with sealing wax or dental lac.
2. Select a porcelain tooth, preferably a diatonic tooth, which is suitable in size and shape for the space required to be filled, and embed its lower pin surface in the softened sealing-wax, so as to leave the buccal and occlusal surfaces exposed.
3. Cut a piece of pure 24k. plate gold, gauge 32, and of sufficient size to cover the occlusal, buccal, mesial and distal surfaces of the tooth when stamped up.
4. After annealing this gold, carefully press it into contact with the surfaces of the porcelain tooth, and then stamp it into close contact with the tooth by means of the rubber block and metal plunger, etc.
5. The pure gold tooth shell which is thus obtained may be strengthened with gold solder, wherever required, and may then be either filled up flat with more solder, or made into a hollow box by soldering a gold base over the open edges of the gold shell, or the hollow may be filled with cement, and then have the cover soldered on.

This gives you a perfect tooth form, with a pure gold surface, which is exactly the correct size and shape.

## PRESSURE ANESTHESIA.

BY J. J. LOFTUS, D.D.S., TORONTO.

CASE.—Upper right cuspid; pulp nearly exposed, inflamed and very sensitive. After removing carious substance, and burring as close as possible to the pulp, an application was made in the following manner:

A small pledget of cotton, dipped in absolute alcohol, and saturated with cocaine in the crystalline state, to which a little chloroform is added, placed over the pulp, and covered with a piece of unvulcanized rubber, sufficiently large to fill the cavity. Gentle pressure was applied with a plugger large enough to almost fill the cavity, for three minutes. After two applications, an exposure was made. The operation being repeated, the canal was enlarged half way up. There was still slight sensation near the apex. The operation was again repeated, and the pulp removed entirely, without discomfort to the patient.

## Proceedings of Dental Societies

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### NOMINATION TO TORONTO DENTAL SOCIETY.

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At the April meeting of the Toronto Dental Society, the following names were put in nomination to fill the offices and committees of the society for the year 1903-1904. The elections will take place at the May meeting.

Hon. Pres.—Drs. W. E. Willmott, H. Clark, J. B. Willmott,

Pres.—Drs. Charles E. Pearson, McLaughlin, Martin, J. F. Adams, Lennox.

First Vice.—Drs. Seccombe, C. E. Pearson, Mrs. Wells, Eaton, Wunder.

Second Vice.—Drs. Mason, W. L. Spaulding, J. F. Adams, Belden, McDonagh.

Secretary.—Drs. Spaulding, Hume, Clark, Martin, Jordon.

Treasurer.—Drs. J. F. Adams, Seccombe, Kennedy, Hume, Clark.

Archivist.—Drs. Martin, Jordon, Spaulding.

Councillors (two to be elected.)—Drs. McLaughlin, McLean, McDonagh, Clark, Wunder, A. W. Spaulding, Hume, Eaton, Hudson, Pearson, Trotter, Husband, Lennox.

Membership and Ethics Committee (three to be elected.)—Drs. Mallory, Jordon, Wunder, Lennox, Spaulding, McDonagh, W. E. Willmott, Seccombe, Mason, Chambers, Hume, Trotter, Price, Husband, Wells, Adams, Scott, Clark.

Dinner Committee (three to be elected.)—Drs. Chambers, W. E. Willmott, Wunder, Jordon, Fred. Mallory, McDonagh, Clark, Seccombe, Belden, McLean, Eaton, Kennedy.

Press Editor.—Drs. C. E. Pearson, Hume, Seccombe, Martin.

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### PRESENTATION TO DEAN WILLMOTT.

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Immediately after his final lecture, on April 8th, the members of the senior class presented Dr. Willmott with an address and a handsome marble clock, as tokens of the esteem in which he was held by the graduating class.

The Dean responded in a happy vein, thanking the class for their gift. He hoped the members of the class would always stand loyal to their *alma mater*, as mentioned in the address, and be successful in after life. The boys then sang, "For He's a Jolly Good Fellow," and after giving three cheers and a "tiger" for the good doctor, this pleasant function came to an end. We append a copy of the address:



*Dr. J. B. Willmott, Dean of the Royal College of Dental Surgeons of Ontario.*

DEAR DOCTOR:—As our college days are drawing to a close, the members of the senior class desire to express their appreciation of your services to the profession in general, and to the class in particular.

Your position is unique. You may well be termed the "Father of Dentistry" in this Province, and we know that it is owing to your efforts, in great measure, during many years, that we owe our present college building and our splendid course in dentistry.

Your patience has doubtless been sorely tried, owing to exuberance of animal spirits, at times, on our part; but we believe this will be overlooked and forgotten.

We trust your teaching, direct and indirect, professional and otherwise, may bear abundant fruit in our future careers, and that we shall always look back with pleasure to our *alma mater* and the years we have spent under this roof.

Accept this clock as a slight token of our respect. May it always bring pleasant memories of the Class of Naughty-Three.

Signed on behalf of the class,

W. D. N. MOORE, *President.*

F. N. BADGLEY, *Secretary.*

Toronto, April 8th, 1903.

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### MISSOURI STATE DENTAL ASSOCIATION.

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The thirty-ninth annual meeting of the Missouri State Dental Association will be held at Kansas City, Mo., on May 19th, 20th, 21st. Reduced railroad and hotel rates have been secured, and a large attendance is assured. A number of dentists of national reputation, amongst them Drs. J. B. Willmott, Toronto, Canada; E. K. Wedelstaedt, Minneapolis, Minn.; and A. C. Searl, Owatonna, Minn., will present features and give clinics. All ethical members of the profession are cordially invited to attend, become members, and take part in the discussions.

OTTO J. FRUTH, *Cor. Sec.*

3066 Hawthorne Boulevard, St. Louis, Mo.

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### WESTERN ONTARIO DENTAL SOCIETY.

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The second annual meeting of the Western Ontario Dental Society will be held in Chatham, June 30th and July 1st, 1903.

## MANITOBA DENTAL ASSOCIATION.

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The annual meeting of the Manitoba Dental Association was held on January 13th. The following compose the council for the ensuing term: Drs. Bush, McInnis, Ross, Robertson, and Clint. The council appointed the following officers: Dr. G. J. Clint, president; Dr. G. F. Bush, secretary; Dr. G. C. Mathison, treasurer; Dr. S. W. McInnis, registrar. Owing to important business now under consideration, it is probable that a special meeting of the association will be held in July.

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### Correspondence

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*To the Editor of DOMINION DENTAL JOURNAL:*

DEAR SIR,—At a regular meeting of the Elgin Dental Society, held in this city on February 15th, a committee was appointed to investigate the charges made against Dr. Fear, of Aylmer, through articles published in the DOMINION DENTAL JOURNAL, over the signature of F. H. Miller, and at a subsequent meeting, held March 9th, the committee made the following report:

Your committee appointed to investigate the charges of misconduct made against a member of this, the Elgin Dental Society, appearing in different articles published in the DOMINION DENTAL JOURNAL, over the signature of F. H. Miller, of Aylmer, desire to say that we have carefully investigated the matter, and beg to report that, while the advertisement so much complained of in said articles did appear in one issue of the Aylmer *Express*, it was inserted in a fit of exasperation caused by the flagrant and long-continued unprofessional conduct of the writer of the aforesaid articles, but was immediately withdrawn from publication, not appearing in any future issue of the paper, thus showing full repentance. We, therefore, see no reason to censure Dr. Fear, but rather consider the articles in question as a part of that "task" which Mr. Miller refers to in the closing paragraph of his January letter, the facts of which, as far as we are able to discover, showed this, because known to the profession at large, would once and forever ostracize him from the association of professional gentlemen, and, especially, brother dentists.

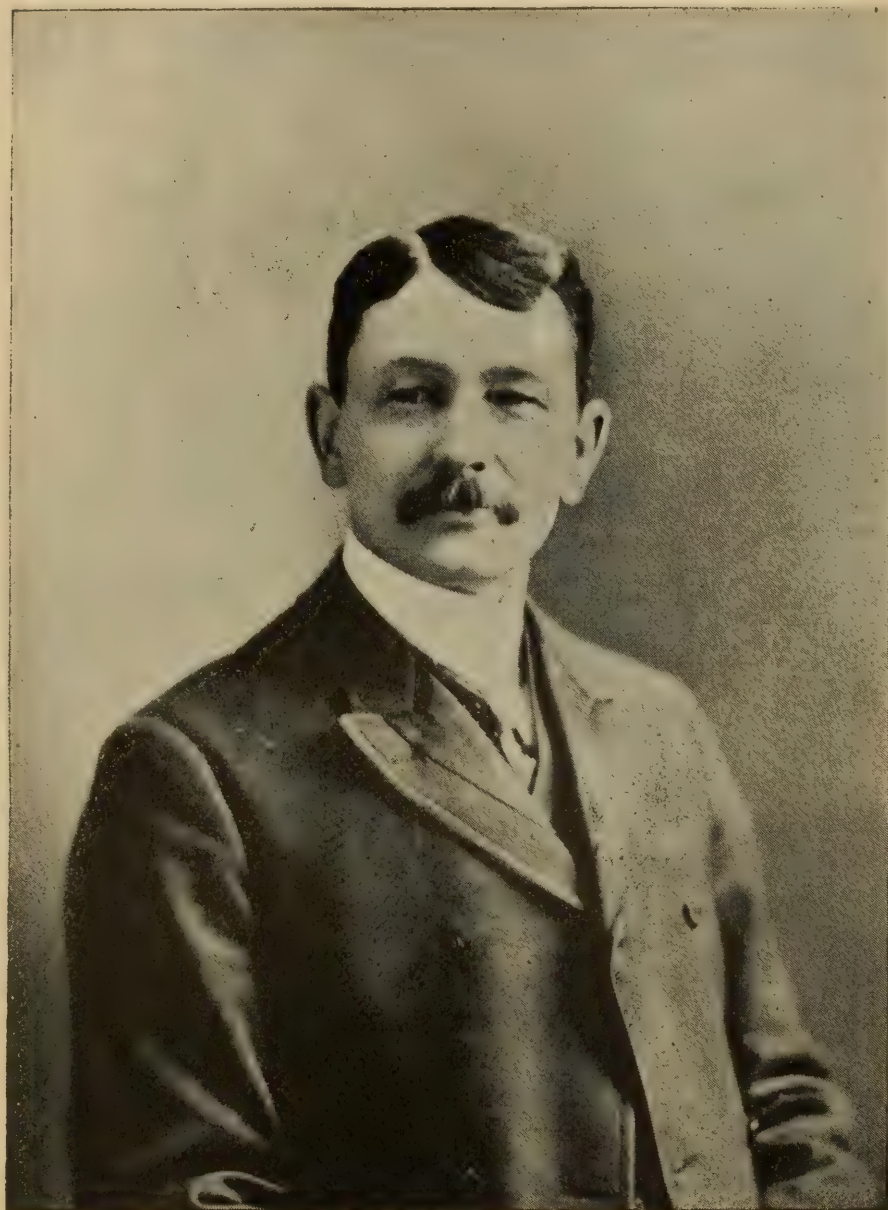
FRANK E. BENNETT, *Secretary E. D. S.*

St. Thomas, Ont., March 17th, 1903.





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S. MOYER, D.D.S., GALT, ONT.

PRESIDENT ONTARIO DENTAL SOCIETY



# Dominion Dental Journal

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A. E. WEBSTER, M.D., D.D.S., L.D.S. - - - - TORONTO, CAN.  
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VOL. XV.

TORONTO, APRIL, 1903.

No. .4

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## Editorial Notes

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THE way to gain freedom is to give it.

DR. W. T. HACKETT, of Boulton, has moved to Toronto Junction.

DR. J. W. BRUCE, of Toronto, will locate in Owen Sound this month.

DR. LACKNER, formerly of Hespeler, Ont., is now in practice at Ditsbury, Alberta.

REVERSING the treatment of the man you have wronged is better than asking his forgiveness.

DR. W. D. COWAN, of Regina, was elected Master Workman of A.O.U.W. at a recent general meeting of the order in Winnipeg.

THE Dental Army Corps Committee met the Minister of Militia on March 19th. Dr. Bower, of Ottawa, is chairman.

To be a man is to be a drudge.  
To be a woman is to be martyr.  
To be either is hell.

WITH some folks economy is in going without things they want, in order to save money to buy things they do not need.

DON'T get mixed up in factions. Keep out of all little bug-house squabbles. We are here to work; don't you know that?

DR. S. B. PALMER, of Syracuse, New York, died March 30th, 1903, having retired from active practice only three weeks previously.

DR. W. L. TAIT, of Marmora, has bought the practice of Dr. Burns, of Smith's Falls. Dr. Burns is now in practice at Merrickville.

DR. H. J. M. BANNERMAN, of Owen Sound, who has been in practice with his brother for some years, has begun to practise on his own account.

THE name of the Gornlay Gold Company, of Toronto, has been changed to the Wilkinson Company, taking the name from Dr. J. E. Wilkinson, its president.

DR. BRACE, of Brockville, has sold his practice, to Dr. Woodrow, of Whitby, and Dr. Johnson, of R. C. D. S., 1903, will take the practice of Dr. Woodrow.

THE Dental Society of Western Canada will hold its annual meeting in the latter part of June or early July. The committee has much of the programme now prepared.

THE students of the Royal College of Dental Surgeons are making arrangements to issue a college paper every month during the sessions. The first issue is to appear next autumn.

THE Odontological Society of New South Wales sends out its fourth annual report in a neatly-bound pamphlet. The report contains the doings of the society for the year, and the financial report.

"IN time of peace prepare for war" is the advice of a fool. We have anything we prepare for, and who in Canada wants war? "War is hell," and just so soon as we have an army we will have war.

IT is the opinion of William Trueman that dental societies should have a publication committee whose business it would be to edit the proceedings of the society, and present them to the editor in some reasonable form for publication. This committee should take a good deal of liberty with speakers' remarks, retaining the thoughts and expressions peculiar to the individual, but expunging bad and awkward expressions.



AFTER placing the rubber in a cavity where immediate extirpation of the pulp is intended, if a pellet of cotton is placed over the rubber, a much better pressure can be obtained, as it prevents the rubber from spreading so much under the instrument.—W. A. BROWNLEE, Mount Forest.

VERY convenient small polishing wheels for getting at difficult places on a plate can be quickly made from ordinary sole leather. Punch a hole in a piece the desired size, screw it on the lathe spindle, and with a sharp tool turn it to the size and shape to suit the case in hand.—W. A. BROWNLEE, Mount Forest.

A SAFE and quick way to remove a model from the articulator is to grip the articulator in a bench vice, and cut through the plaster with a small hand-saw. This plan is especially suitable for the removal of lower models, which are so easily broken. If sawn off at the right depth no paring is necessary before flasking.—W. A. BROWNLEE, Mount Forest.

A NUMBER of the graduates of the Royal College of Dental Surgeons will this year seek a living in Western Canada and New Ontario. The less enterprising and courageous ones will stay near the home which has done so much for them. The young man who leaves home, parents, and perhaps a sweetheart, to hew out a living for himself, is made from different clay from the "Izzie boy." Is it any wonder that our Western country is progressive when it gets the best this and many other countries can produce?

THE lectures and laboratories of the Royal College of Dental Surgeons will close April 15th; the examinations begin April 20th; the Board of Directors meet April 27th, and the commencement exercises will be held in Guild Hall, McGill Street, Toronto, on the evening of April 30th. Any of the profession desiring invitations to the commencement exercises of the college and special Convocation of Toronto University, can have them by applying to the Secretary of the Board, or to the Registrar of the University.

THE *Toronto Daily Star* of March 23rd, 1903, contained a report of the prosecution of Mr. F. M. Kerins, for a breach of the Dental Act. Mr. Kerins was acquitted, because he swore that he had done no dental work except as a gratuity for a friend. Dr. Henderson swore that Mr. Kerins had done no dental work. The report also said that Mr. Kerins was a dental student, which is not in accordance with the definition as laid down by the Act Respecting Dentistry in the Province of Ontario. Only matriculants of the Royal College of Dental Surgeons, who are under indentures are properly called dental students.

As usual, there are two or three more applications to the legislature for private bills to make dentists by act of Parliament. It is surely about time for dentists to look with distrust upon the member who advocates such legislation. A government must be weak which passes legislation stating that all who wish to practise a profession must comply with certain regulations and forthwith goes back on their own regulations by allowing anyone to practise who may apply to the legislature for such privileges. Tell them to stiffen up a bit.

ASPHYXIA, TREATMENT BY HYPODERMATOCLYSIS AND  $H_2O_2$ .—The advantages of this method of treatment over endovenous injections of oxygen are set forth by the writer, who holds that the latter are not devoid of the danger of producing gaseous emboli, while the special apparatus necessary makes their administration inapplicable in the majority of cases. He believes that the danger attributed to  $H_2O_2$  from its oxidizing action in the presence of acids, and from its reducing power in the presence of alkalies is much exaggerated. Phenard demonstrated its presence in the air and water; Wurster found it in saliva, milk, perspiration, and wherever the vitality of the protoplasm was greatest. Schonbein states that  $H_2O_2$  is not only formed in the organism, but has an important function in the processes of oxidation. And if it is true, as has been stated, that the decomposition of this substance when brought in contact with living protoplasm or in the blood vessels, produces symptoms of poisoning, with dyspnea and asphyxia, such effects are obviated through its hypodermic administration, either because it decomposes more slowly, or decomposition does not take place, and its excess of oxygen is utilized by the methemoglobinuric blood of the venous radicles. That venous blood does reduce peroxide *in vitro* has been demonstrated through the arterial color produced by its addition to such blood. Its power to overcome asphyxia has been proven by the author through its injection into animals experimentally asphyxiated, those so treated recovering after repeated hypodermatoclysis with  $H_2O_2$ , at intervals of five minutes, 50 cubic centimetres being used in all. Asphyxiated animals who did not receive the injections succumbed within a short time.—G. CAMPANELLA (*Medical News*; from *Gazzetta degli Ospedali*, November 23rd, 1902).



# Dominion Dental Journal

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VOL. XV.

TORONTO, MAY, 1903.

No. 5.

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## Original Communications

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### THE NECESSITY FOR AND THE OBTAINING OF PROPER OCCLUSION IN ARTIFICIAL DENTURES.

BY S. H. GUILFORD, A.M., D.D.S., PH.D.

Read before the Ontario Dental Society, February, 1903.

If correct and effective occlusion is necessary in the natural dental organs for mastication, speech, and appearance, it is also quite as essential, and in some respects more so, in artificial substitutes. Neither mastication nor speech can be performed in a perfect and satisfactory manner when the occlusion is faulty. The natural teeth in each jaw, when perfectly placed, not only meet their opponents so as to produce contact at all essential points, but in the various movements of the lower jaw all cusps or occluding surfaces come into contact and pass over those opposite in such a way as to comminute the food in the most perfect manner.

In nature's plan there are no superfluities, but only essentials. Each part and each surface has its appropriate work to perform, and to accomplish this in the most effective way the occlusion must be what we designate as normal. If this be true of the natural teeth, it would seem that the same plan of arrangement should be followed with the artificial ones. All through the history of dentistry this has been accepted as the true, logical plan and practice. Is it, however, strictly true? Are there not different conditions existing in the edentulous jaw from those obtaining in the natural one? In the natural jaw the teeth are firmly implanted, with no possibility of dislodgement, so that the question of stability does not come under consideration. Whatever motions the lower jaw may pursue, and however the cusps and incisal edges may at times meet and glide over one another, the line of force, whether direct or at an angle, does not interfere with the function of mastication.

With artificial teeth, however, placed in appliances that are not fixed or stable to any considerable degree, the direction of force enters as a very important factor. What is possible with fixed teeth may not be equally possible with those that are liable to change their positions unless force is directed in such a way as to tend to keep them in place. Under the existent conditions, therefore, we have a problem to solve which cannot be disregarded. Artificial teeth have always been made with cusps nearly if not quite as pronounced as the natural ones, the idea being that they should interlock and play over one another just as the natural ones do. When the lower jaw moves directly up and down, the cusps interdigitate in a perfectly satisfactory manner, but when the mandible is moved to one side or the other, or forward, cusps will often meet point to point, and some will meet, while others do not. Under these circumstances one plate or the other is liable to be moved out of position, and the whole function of mastication disarranged and disturbed.

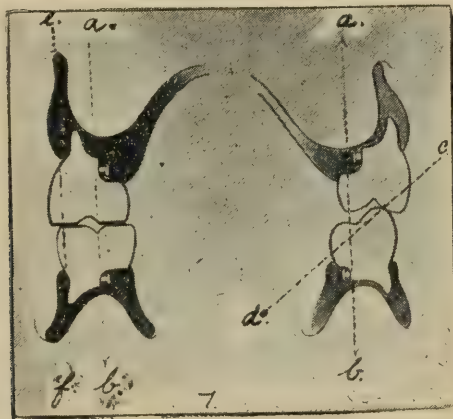


FIG. 1.

In the lower jaw, where the teeth are placed on the centre of the ridge, with their crowns inclined somewhat inward, the usual forces of mastication tend to keep them in place, because the line of force is directed toward the centre of the ridge (which is the fulcrum), or inward between the fulcrum and the power. With the upper teeth overlapping the lower, however, the line of force is outside of the fulcrum, and hence tipping or displacement must result. In proportion to the length or prominence of the external cusps of the upper teeth will the leverages be increased, because when the outer surface of the buccal cusp of the lower tooth comes in contact with the inner surface of the buccal cusp above, the line of force is more in an outward than an upward direction. This is well illustrated in the diagram (Fig. 1) where the lines *a—b* represent the centre of the ridge or fulcrum of the plate. When power is applied against the inner surface of the upper buccal cusp, the line of force is in the direction of *e—d*, which is far outside of the ful-



crum. If the cusps be flattened or reduced in height, when the buccal halves of the lower and upper teeth meet, the line of force will take the direction of  $e-f$ , which is not nearly as far from the fulcrum as  $e-d$ .

It therefore follows, we think, that if we wish to reduce to its smallest possibility the tendency of the plate to tip or rock, we should diminish the height of the cusps of both upper and lower teeth, and render their occluding surfaces more nearly flat or even. This is not a theory, but a fact proven years ago by some practitioners who followed this method. In shortening the cusps of the occluding bicuspid and molars, they found that the plates were far more likely to retain their positions under the force of mastication. (See articulated models, Fig. 2.)

It may be claimed that when the lower jaw is moved laterally, and the buccal cusps of the upper and lower teeth on one side are temporarily in contact, the lingual cusps should also touch. We know, however, that such is not the case with teeth made as they are to-day, and always have been, for the lingual

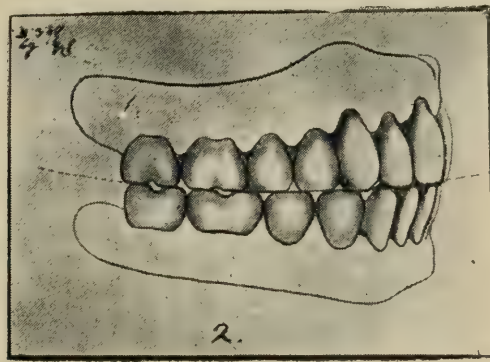


FIG. 2.

cusps are much shorter than the buccal ones. Besides, in the gliding of well-defined cusps over one another, there is at some point of the movement a distinct force exerted in the line of  $e-d$ .

With flattened cusps the line of force can never take this direction. The leverage of a plate is not always from side to side, but is more liable to occur from before backward, because the incisal edges of the upper teeth are always so far beyond the centre of the ridge. This difficulty is met successfully by lessening the overbite in front. The shortening of the cusps and reduction of the overbite do not lessen the ability to masticate or triturate the food, for numberless patients have worn and used plates constructed after this method who had been unable to properly chew their food with plates constructed upon the customary plan.

In this connection we need but remember the wearing of the natural teeth, and entire obliteration of the cusps in many cases

after middle life. This change of form certainly does not tend to lessen the ability of the individual to masticate food. In fact, it is a question whether mastication is not more perfectly and easily performed after such wear than before it occurred. The cusped form of tooth is characteristic of the carnivora, who require the sharp points or cusps to enable them to divide and tear raw animal food. Man, at least the man of to-day, does not eat raw or uncooked meat. It is prepared so as to require very little force to separate its fibres, and prepare it for digestion. With this change in requirements the cusped teeth of man are used more like the molar teeth of the herbivora, in which a grinding and not a tearing motion is exercised.

The worn human teeth of later life, with their prominent and sharp margins of enamel, and the uneven and depressed surfaces of dentin, bear a very close resemblance to the convoluted teeth of herbivora. The alteration of the forms of the occluding surfaces of artificial teeth will not interfere with their arrangement, according to the idea and method of Dr. Bonwill, who claimed that the line of occlusion should be a curved line from before backward. (See models.)

The shortening of the upper molars and lengthening of the lower ones, so as to produce this curved line, has been proven in practice to be correct, and should always be followed, for it very materially serves to counteract the leverage produced in biting with the anterior teeth.

In the arrangement of the teeth we should be able to simulate all the various movements of the lower jaw, so as to provide for proper occlusion under any and all conditions that they will be subject to in mastication. This can only be done by using an anatomical articulator. The one devised by Bonwill was the best in its day, but the Kerr articulator has valuable features not possessed by the Bonwill, and should be in the hands of every practitioner and student. The advantages of its use, as shown by the practical results, are so manifest that one cannot help but wonder how even a moderate measure of success was attained by the unscientific instruments formerly in use.

Diagram No. 2 gives a fair idea of how artificial teeth will appear with their cusps reduced and arranged, according to the curved line of Bonwill. Besides arranging artificial teeth for best service in mastication, we must necessarily have regard for appearance. This requires the selection of teeth suitable to the temperamental characteristics of the patient, including size, shade, and form, and their arrangement so as to reproduce, as nearly as possible, the expression and appearance of the individual before the natural teeth were lost. The bite should not be long enough to require an effort in closing the mouth, nor so short as to produce puckering or overfulness of the lips. With the mouth in repose and the lips slightly apart, the upper incisors should show for about one-third of their length, and the



lower ones scarcely at all. The plates should be so fashioned as to restore the original fulness of the lips and cheeks, particularly in the superior cuspid region, where the greatest shrinkage takes place.

The deep lines running from the corner of the nose toward the commissure of the lips should be lessened, but not entirely obliterated, for while we desire to improve the appearance of the individual, we must be careful not to make so great a change as to cause the patient to look much younger than his years.

A little art will also aid us in our endeavor to make the artificial substitutes look more natural. The teeth should be arranged a little unevenly with the spaces between them slightly greater at some places than others. A missing bicuspid will often assist in our pardonable attempt at deception.

In persons of past middle life the anterior teeth should be ground flat on their edges, and be slightly nicked to imitate the clipping of enamel so generally seen in the natural ones. Gold fillings in artificial teeth were once popular, but they often serve to attract attention when attention should not be directed to the teeth at all. A final touch of naturalness can be imparted to artificial teeth by removing their excessive gloss with an emery disk. The saliva will give them all the lustre that natural appearance calls for.

#### DISCUSSION.

W. A. BROWNLEE.—I am sure you are all pleased to listen to Dr. Guilford's exhaustive paper on such an interesting and important subject. Its importance has to do with the facial contour, with mastication, and with speech or articulation of sounds. By far the most important of these is the effect on the power of mastication, and if anything is to be sacrificed let it be the appearance. Nature is a great book, in which we find a great amount of instruction, but the conditions are so different in the mouth after the loss of the natural organs that we cannot be guided by her example here. The absorption of the alveolar process in the superior maxilla is upward and inward, but in the lower, downward and outward, so that in the latter condition we have lost the fixed stability of the natural teeth, and have in its place mobility of the artificial dentures and an increased leverage by reason of the absorption, the fulcrum is further removed from the point of pressure, and the direction of force is changed. A proper beginning is necessary to final success, and therefore I would say, Get a perfect bite. After obtaining good models, fit to them wax plates with a rim on each, sufficient to separate the jaws just far enough to produce a natural expression of the face. If the jaws are separated too much, it gives the patient a "down-in-the-mouth" expression. The features will be somewhat drawn and thin, the angles of the mouth drooping, the

face assuming a sad appearance, and if the fault is very marked the intermaxillary muscles will ache when the dentures are first inserted. By the increase of the intermaxillary space the liability to displacement is also increased, the point of force being further removed from the bearing on the alveolar ridge. If the jaws are allowed to close beyond the normal condition, the objection is almost as great; it produces an unnatural protrusion of the chin and lower lip, giving the face an aged appearance, far beyond the patient's years. While the wax plates are in the patient's mouth, I mark the centre of the face on the wax, and also a horizontal line at right angles to the median line of the face, and when the models are placed on the articulator, this horizontal line is parallel to the bottom of the articulator, and the intended line of the incisal edge is never lost sight of.

I could not suggest any better method of occluding the molars and bicuspid. I quite agree with Dr. Guilford as to the unnecessary prominence of the outer cusp on artificial teeth, and this is one of the many improvements which manufacturers might make in the forms of their porcelain substitutes. There is, however, an important point about the occluding of the six anterior teeth which the essayist did not speak of. I never allow the lower incisors and cuspids to touch the upper teeth, but, if possible, leave 1-32nd of an inch or more of clearance. In the movements of the lower maxilla in speaking, the lower teeth are brought forward, and unless considerable space is allowed for this action displacement is the result. I approve of the Bonwill curve, in this we can imitate nature with advantage. I might say that in fitting up I place the superior incisors and cuspids in position, then the lower anterior teeth, after that the upper bicuspid and molars, and so on. I do so because I think the upper teeth have more to do with the appearance than the lower. In fitting the bicuspid and molars to position, I do not allow the inner surface of upper cusps to bear on the outer surface of the lower cusps, for two reasons: If the cusps of the lower teeth are allowed to bear only on the outer surface of the inner cusps, then the pressure is directed in the line of greatest resistance and the manner least liable to cause displacement. If, however, the burden of pressure is on the outer cusps of the superior teeth, the upper plate is liable to be fractured in the median line. To retain the proper expression of features, new dentures should be substituted when the absorption of the alveolar process changes the relation of the lower to the upper teeth.

I would like to add something to what Dr. Guilford has said about the height of the rim of the plate, I have found by experience that this has much to do with the retention of the denture. It should be low in the median line, high over the cuspids, low in the bicuspid region, and higher again above the molars, but in no place should it be so low that the soft tissues will not rest lightly upon the edge of the plate. The margin



should be slightly rounded and smooth to prevent irritation. The lower plate should not be so deep that the movements of the tongue or the contraction of the facial muscles will raise it out of position. First instructions to a patient have something to do with the successful use of a denture. The patient should be instructed not to attempt to bite at first with the front teeth, but to cut food fine, and after introducing it into the mouth distribute it on both sides, chewing on both sides at the same time, thus balancing the artificial dentures, producing equal pressure, and, as far as possible, removing the cause of displacement. Gold fillings in artificial teeth are not an advisable means of disguise. They weaken the porcelain and give to the denture a "shop-made" appearance. Shade, shape, size, and position have more merit in producing a natural appearance than the lustre of any number of gold fillings. Overlapping centrals and protruding laterals are among the most common irregularities in the natural teeth, and may be imitated in the artificial denture if a disguise is desired.

DR. BROWNLEE.—I am sure I do not enjoy making apologies, but seeing that our worthy president made such a nice apology yesterday, I think I will be pardoned for making mine now, and I think Dr. Guilford will also pardon me. When Dr. Guilford sent me last week a synopsis of his paper, I began to formulate a short address in reply, but yesterday Dr. Guilford was kind enough to inform me that that synopsis was not exactly in line with his paper, and I was obliged to go over the work this morning again, and if my paper is not just what you think it ought to be, I trust that you will be lenient in your criticism.

DR. C. E. PEARSON.—I consider it quite an honor to be called upon to discuss this paper, but I have been working out the clinics for to-morrow, and have not been giving the paper due consideration. I can hardly tell what has and what has not been touched upon. If I were disposed to be critical at all (and it is with the greatest respect to the essayist that I am), it would be that Dr. Guilford apparently neglects the artistic results for the sake of utility, and to me the word utility here implies a restoration of harmony to the features. If that is so, then a complete denture must do more than perform the function of mastication—it must restore the expression of character in the individual, and it must hide the fact that it is an artificial denture. The essayist leaves us in doubt as to these points. I have but one suggestion that I wish to offer, and that is, where we have a crowded arch for a partial denture—probably the four front teeth are lost, and there is not sufficient room to put in the size teeth which the case demands—it is often wise to leave out a lateral, and make the centrals larger, having two centrals and one lateral in that space; the artistic appearance would be much better than if we had four teeth which are smaller than nature demands

crowded in there. Again, Dr. Brownlee's point about the lower teeth not interfering with the upper teeth is very good, because if the superior teeth protrude too far over the inferior teeth, those movements touching upon the centrals and laterals previous to the touching of the molars will tip the denture downwards on the inside. Dr. Guilford has explained this in a very scientific way. Then, speaking of the fulcrum, when we have a complete denture with the pressure on both sides, we have the fulcrum in the centre of the mouth, so that the tip would be overcome, whether there was a lateral movement or not, by having the molars protrude beyond the line of the fulcrum, and having them touch on each side. I do not know whether you understand properly what I mean. I think I can show you better by an illustration. (Illustrates.) This is the only point I wish to call attention to.

J. B. WILLMOTT.—Mr. President and the members of the association will remember that Dr. Guilford is a professor of prosthetic dentistry, and consequently he is an expert in this particular department of dentistry. I try to teach prosthetic dentistry myself sometimes, and the objection I have to say anything now is that every member is familiar with my presentation of the subject, and it is a sort of "chestnut" to hear my views. I suppose that not 10 per cent. of those present have not sat under my instruction. There is just one suggestion I have to make about the grinding of these cusps. In middle-aged to elderly patients I think the cusps should be removed to such an extent that they will slide easily over each other, and the occlusal surfaces should be to some extent plane, so that whilst the teeth slide over each other they will not act as a source of blocking, but will serve to crush and grind the food. Some dentures, when they have been worn for two, three, or five years, when closed, naturally strike first on the lingual aspect of the upper incisors, that dislodges the upper denture at the back, and it will drop until it meets the lower, and it becomes a great annoyance. The shortening of the lower incisors would greatly eliminate this trouble, and a little alteration of that kind will make these dentures satisfactory. The patient does not complain that they fall in mastication, but when they are speaking rapidly and close the mouth to swallow their saliva the denture is loosened and drops into the mouth.

DR. STEELE.—This is a subject that I consider very important, and I am glad that such a gentleman as Dr. Guilford has taken up what is usually considered one of the common classes of subjects. Our leading speakers on former occasions have dealt with something less practical, and I think it much better to be treated with something more practical.

DR. H. E. EATON.—In a case where the absorption of the gum has gone on in the superior maxilla, narrowing the arch, which it always does, leaving the inferior much wider, should the



articulation be made outside the lower teeth? Would Dr. Guilford suggest that the manufacturers produce the teeth without the gloss on them?

DR. GUILFORD.—I think so.

DR. H. E. EATON.—When a morsel of food is taken into the mouth, it is placed between the teeth on one side only for mastication. The teeth on the other side would not then be in contact. Does Dr. Guilford depend entirely upon his method of articulation to retain the denture under those conditions?

DR. GUILFORD.—Yes; I depend upon proper articulation of the teeth.

DR. H. E. EATON.—I thank the essayist for his explanation of the point raised by me. I understand that he depends entirely upon his method of articulation for the retention of the denture, viz., by placing the teeth so that the line of stress will correspond with the centre line of the ridge, thus overcoming any tilting of the denture, but rather tending to retain it more securely when pressure is extended upon the teeth. But, in speaking of the next case, viz., to insert a denture where all the teeth are in place in the inferior maxilla, and the molars and bicuspid missing on one side of the superior, he says he is now up against a problem. If the same principle of articulation is adopted, may I ask, where is the problem?

DR. ADAMS.—Dr. Guilford has dealt with his subject most admirably, and I would like to ask one question regarding a case where the lower bicuspid and molars have been lost, and you have the six anterior left. You have a full upper denture, and need a partial lower to go around the teeth and occlude; there will have been absorption and the front teeth will strike the uppers. How would you remedy this? Would you grind the lower teeth or reset (excuse me, make a new denture). We find a great number of cases of this kind.

DR. SWANN.—I have a case just now, and I suppose that it is one of the ordinary class, as it is one we all meet with in practice, where the lower jaw is wide, and the upper jaw has been absorbed very much, so that it is very small. I would like to ask Dr. Guilford how he would arrange the setting up of the teeth, so as to get the best possible use from that denture. I have been trying setting up the uppers to articulate inside the lowers.

DR. GUILFORD.—As I understand Dr. Swann's case, it is one of an absorbed upper arch and a wide lower jaw, and I think in his case I would arrange the upper posterior teeth so that they would occlude inside of the buccal cusps of the lower posteriors. By this means you would still have the upper anterior teeth overlapping the lower ones, and resting on the outer part of the alveolar ridge.

DR. PEARSON.—We have now a golden opportunity to thrash out and have fixed the question as to whether a vacuum

chamber is necessary to the retention of a denture or not. We have used air chambers for a number of years, and we have just been told the advantages of trimming the soft parts on the model, and so see that the chamber is not altogether necessary. Dr. Guilford says that if the occlusion is correct the retention of the denture will be all right. I would like to ask him if he thinks that perfect occlusion will suffice to keep the denture in position without the vacuum chamber. It seems to me that it does not make a great deal of difference whether we have the chamber or not, so long as the occlusion is right and the impression was a good one; but when there are other cases, and Dr. Swann has mentioned one, where it is very difficult to do anything to obtain the success you would wish. There is another case where we have a full upper denture and the lower natural teeth, with the exception of the molars on one side. Now, the pressure of the lower teeth upon the upper denture tends to upset it, and loosen it, and I would like to ask Dr. Guilford how he treats such cases as that; whether he would put in an extension bridge, or what?

DR. GUILFORD.—I feel highly complimented by the discussion that has taken place, for, as I said yesterday, there is nothing an essayist likes so much as to have a good discussion of his paper. You know our friend, Dr. Johnston, always wants somebody to fight with when he reads a paper, and I feel very much the same. I shall take up the points as I remember them. Dr. Brownlee said he did not place the teeth so that the outer cusps of the lower would touch the outer of the upper. Well, neither do I, but this is what I do (explains from blackboard). Some one asks whether the plate should extend well over the alveolar ridge. Yes, that is of the greatest importance. Another interesting point has been brought up, and it gives me a chance to explain something in regard to mastication. In masticating I said that we eat first upon one side and then upon the other, and this fact enables me to bring out the fact that I am contending for, viz., that the force employed in the mastication of food on one side of the jaw is not counteracted by the force on the other side. By grinding the cusps somewhat, we can have the force exerted on both sides of the fulcrum or centre of ridge at the same time, thus balancing one another and preventing tipping. (See Fig. 1.) Some one asks what I would do in a case where there was a full upper denture needed, and in the lower maxilla some of the molars were missing. There are a great many ways of meeting this condition, but in whatever way you do it you are likely to have some trouble. The speaker asks whether I would make a partial lower plate and articulate the upper teeth to it. I certainly should, for the patient's interests would require it. There are many things to be considered in the making of the plate, but the most important is the obtaining of a good impression. To do this we must first study the mouth, and familiarize ourselves with its condition.



See whether it has a hard ridge and soft vault, or a soft ridge and hard vault. Having done this, we should ascertain the position of the teeth, if any remain, and then take the impression with the material that is best suited to the case in hand. In taking impressions, we usually endeavor to get an impression of the mouth as it is in a state of repose. When the palate is hard in some places and soft in others, we ought to use a material not as soft as plaster, for with it the soft parts remain the same. A better plan is to take an impression in wax and cut away from it such portions as represent hard parts of the palate and ridge. Place mixed plaster upon it and reinsert. The hard parts will be taken in repose by the plaster, while the soft parts, though taken in plaster, will be under pressure from the underlying wax. A model made from an impression taken in this way will represent the mouth under pressure, such as a plate would be likely to exert. The result will be that tipping or rocking will be almost entirely avoided. Now about air chambers—I would say, use air chambers or vacuum chambers; but try to use them to suit the conditions of the case. One general point about air chambers is that they should be shallow.

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## CEMENT FILLING, GUTTA PERCHA, ETC.

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BY S. H. SIMPSON AND C. E. SUTTON.  
(In Laboratory of Royal College of Dental Surgeons of Ontario.)

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Took part of a cement filling that had been in use for two years, crushed it, and put into a test-tube of bouillon. Placed in the incubator for twenty-four hours; made an inoculation on to agar slant. Placed this in the incubator for twenty-four hours. From the infection thus obtained several slides were made, and amongst many other things a great many cocci, diplococci and streptococci were recognized.

A piece of gutta-percha which had been in use for about six months in the mouth was scraped into bouillon, and same process as above gone through, with practically the same results as far as extent of infection was concerned, except that cocci were alone in evidence.

Took a broach which had been used in a putrescent canal some days before and left unsterilized; made a stab in agar and slant; left in incubator twenty-four hours, with no evidence of growth in either, but after forty-eight hours the slant showed a pretty good growth in form of whitish spots. Slides made from the slant showed streptococci and diplococci and other things which were not known.

## WHICH CLASS OF CAVITIES DEMAND GOLD FILLINGS AND WHICH PORCELAIN.

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BY S. H. GUILFORD, D.D.S., PH.D.

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Read before the Ontario Dental Society, February, 1903.

The question that so long agitated the minds of practitioners of dentistry, and formed such a fruitful subject for discussion in society meetings and dental periodicals, namely, as to whether cohesive or non-cohesive gold was the better material for filling teeth, has dropped quietly into the background, and its place has of late been taken by the newer subject, "Gold v. Porcelain."

The discussion of subjects of this character is not only to be commended but encouraged. They are of vital interest to us who have assumed the duty of the preservation of the natural organs of our fellow-beings, for we are naturally seekers after the truth that shall enable us to benefit mankind to the fullest extent. In fact, to the mental attitude which prompts and stimulates investigations and discussions of this character may be attributed the steady and phenomenal advancement made by our profession in matters of practice within recent years.

For a long time no comparison was suggested between gold and porcelain, for the one was old, tried and perfected, while the other was new and but imperfectly developed. Within the past decade, however, and mainly through the experiments and investigations of Dr. N. S. Jenkins, of Dresden, porcelain had its good qualities so developed and brought to the notice of the profession that it has constituted itself an actual rival of gold, and the contest for supremacy is now on. In order to form an intelligent opinion as to the comparative merits of the two substances, porcelain and gold, as filling materials, we shall first have to analyze their respective qualities, and then place these in the balance for comparison.

Let us begin by stating some of the more important functions of a filling: They are: (1) To check the ravages of decay; this implies, necessarily, durability or length of life, and incidentally, freedom from change of form and condition. (2) To replace lost tissue, thus restoring the organ to its original form and usefulness. This involves the question of strength or resistance to displacement. (3) To re-establish the harmonious expression of the organs.

For just comparison, we must suppose a filling of each to be perfect of its kind or as nearly so as it can be made by the most skilful operators. Neither gold nor porcelain undergoes any change of form so far as its own substance is concerned, for



they are not affected by the fluids of the mouth, and both are too resistant to be worn or broken in ordinary service. The crucial difference between the two lies in the fact that gold is fitted directly to the walls of the cavity, while porcelain, although made to fit the cavity, does not come into actual contact with tooth tissue, being joined to it and held in place by a cementing substance, usually zinc-phosphate.

If this cementing medium were as durable as the gold or the porcelain, one filling would preserve the cavity from future decay as perfectly as the other. Unfortunately, however, the cement will gradually be dissolved (sometimes very slowly, I admit), and if this should not be followed by disintegration of the cavity wall or by decay, as some vehemently claim that it will not, it must at least cause the margins of the inlay to be noticed by the tongue or lip, or prove annoying to the patient in passing silk between the teeth if the inlay involve an approximal surface. No such change can occur along the margins of a gold filling, and in this respect at least we must accord preference to gold.

As to the second function, "that of replacing lost tissue," we can see no difference, as both gold and porcelain readily yield themselves to the fashioning of any form desired. When, however, we consider the question of "restoring the decayed tooth to its former usefulness," we dare not omit the item of strength or resistance to displacement. There is, of course, no strain upon either a gold or porcelain filling unless the cavity includes a portion of the incisal or occlusal surface. When such surface is involved, however, immense stress is sometimes exerted upon the filling, tending to its dislodgement, so that in cases of this character, the question of resistance to displacement becomes a vital one.

A gold corner restoration of a broken tooth can, in nearly all cases, be so extended and anchored as to assure great permanence. Can a porcelain inlay of like form be equally well anchored? Gold is or can be mechanically fitted into its irregularly shaped cavity in such a manner as to preclude the possibility of its dislodgement without the fracture of some portion of the cavity walls. A porcelain inlay could not be accurately fitted to a cavity prepared as for a gold filling, for such cavity is larger within than without at certain points. The inlay, being placed in a solid mass, the orifice of the cavity needs to be larger than the interior, and the inlay can only be held in place by means of cement.

When it comes to a decision as to whether a filling is better retained against the stress of dislodgement by the mechanical form of the cavity, or by cement, we must again agree that gold holds the advantage. It is true that a porcelain corner is sometimes aided in keeping its place by a platinum pin baked into its substance, but even this is only held by the surrounding cement.

In other cases, a step or offset is ground in the cavity walls approximately parallel to the incisal edge, and an inlay made in this form will not need to depend wholly upon the cement for retention, the step, by its mechanical form, being able to sustain much of the strain.

In considering the third function of a filling, "re-establishing the harmonious expression of the organs," the advantage unquestionably lies with the porcelain inlay. The decided in-harmony and consequent conspicuousness of gold is, and always has been, its most objectionable quality, while the marked harmony of color between porcelain and tooth substance seems to constitute the strongest argument in favor of its employment. From what we have thus far said, and the consideration we have given to certain important functions of a filling, the weight of the arguments are in favor of gold, and the conclusions we might fairly draw from them are that where strength, durability, and (probably) permanency are concerned, gold is to be preferred as a filling material, but that where appearance is of prime importance, as in the majority of cavities in the ten anterior teeth, porcelain has advantages that are not even approached by any other filling material at present known.

There are two other advantages claimed for porcelain by its ardent admirers and advocates, which should, in justice, be considered in our estimate of it. One is, that, unlike a metallic filling, it is a non-conductor of thermal changes, and hence a source of greater comfort to the patient. The other is, that in the larger operations less fatigue is entailed upon the patient from the fact that the inlay is constructed outside the mouth and then comfortably inserted when completed.

The first claim does not seem to be an important one, because a deep cavity can be lined with the non-conductive cement as readily and as effectively before the introduction of the gold as a similar cavity can be in the act of placing the inlay. The second claim is a good and just one, as compared with gold, but as the large compound cavities which tax the endurance and strength of the patient while being filled with foil, are usually well away from the anterior part of the mouth, there would appear to be no good reason why they should not be filled with amalgam, or, if preferred, part gold and part amalgam, especially in cases where physical or nervous strain needs to be avoided. The great advantage conceded to porcelain in the anterior part of the mouth on account of its color-harmony loses most of its force when considered in connection with cavities in the posterior teeth.

Now that I have made my estimate of the relative value of gold and porcelain as filling materials, I fear that I may have conveyed the impression that I am a partisan of the gold filling, and perhaps underestimate the value and possibilities of the porcelain inlay. If this has been the case, I regret it, for such was not



my intention. Nearly forty years' experience in the use of gold as a filling material, coupled with the recollection of the satisfactory results it has afforded me, has naturally made me its strong friend, but I have nevertheless been alive to its limitations, and have often longed for some other material which might take its place under certain conditions.

I believe that porcelain has come to supply this need, and that it has come to stay. I further believe that before many years there will be found some substance for cementing or holding the inlay in place which will be very nearly insoluble in the fluids of the mouth, and possibly stronger and more tenacious than the cements we are now using. In addition to all this, I believe that the methods of making the inlay will be so improved and simplified that both the patient's and operator's time will be greatly conserved, and that the question of color or shade will be reduced to such a definite rule that even the moderately skilful will be able to insert inlays that will almost defy detection.

When that time does come, gentlemen, I shall not be here to read, nor will you be here to listen to a paper upon the relative merits of gold or porcelain, for the question will then have been settled as completely as is to-day the question of cohesive *versus* non-cohesive gold.

#### DISCUSSION.

HAROLD CLARK.—Before discussing the able paper to which we have just listened, I wish to say that I appreciate the honor of having my name associated with that of the distinguished essayist. Some fourteen years ago my brother and I entered the study of dentistry together, he in the Philadelphia Dental College and I in our own college here. Through our correspondence Dr. Guilford's name came to my notice at once, and was one of the very first names, prominent in dentistry, that engaged my interest. During these fourteen years I have become pretty well acquainted with Dr. Guilford through the pages of the dental journals, and I have learned to regard him as one who stands for what is professional, dignified, and conservatively progressive in dentistry. These characteristics are between the lines all through the paper we have just heard. Porcelain, as a filling material, has come to stay and to grow in favor. We have all heard the enthusiastic extremist tell us that it is barbarous and "criminal" to expose gold in front teeth when we may use porcelain instead. Dr. Guilford's moderate estimate of the value of the new filling is surely more convincing. From the standpoint of utility alone gold is the better filling on all counts. From the esthetic point of view, there is simply no comparison between the two fillings. Porcelain has all the counts. Our decision as to which filling shall be chosen will depend very largely upon the

importance the patient attaches to the esthetic value of the filling. One patient will assume any risk of the inlay becoming dislodged and having to be replaced rather than display gold every time she exposes her teeth. Another will have what is most durable, and will consider only the utilitarian aspect of the question. Which filling to employ must, therefore, depend much upon their relative values from the patient's point of view. The one locality that, more than any other, would demand porcelain and exclude gold, is the large cervico-labial cavity. Gold, here, is most unsightly. These cavities are usually too shallow to permit the insertion of a non-conducting intermediate, and their broad area and proximity to a very sensitive region of the tooth make a gold filling a source of much distress when thermal extremes are taken into the mouth. On the other hand, the making of the matrix for porcelain in this region presents the least difficulty. The non-conducting virtues of porcelain make it a thoroughly comfortable filling where gold could not be. Moreover, the position of the cavity protected from the stress of mastication, reduces the chance of dislodging the inlay almost to nil. The next class of cavities where the claims of porcelain are large is, perhaps, where the proximo-incisal angle of the anterior teeth is gone. Even here gold holds a strong supremacy in the matter of retention and durability, but it is very unsightly, perhaps even more so than in the cervical cases just referred to. Much judgment has to be used here in deciding whether or not the filling shall be porcelain. So much depends upon the conformation of the tooth and its relation to the occluding tooth during closure. If it be a sensitive tooth, thin, labio-lingually, and the articulation of the inferior tooth is close and high up, then no matter how desirable a porcelain inlay here will invite disaster. On the other hand, if the tooth is of heavy proportions, with perhaps a broad incisal edge, a large and deep step may be made on the lingual aspect of the tooth that will provide very well for the retention of the inlay. As for the use of porcelain in proximal cavities, I should say that it depends upon their relation to the adjacent tooth, the ease of access, and the size of the cavity. The smaller the cavity, the less objection to gold and the greater difficulty in making a perfect inlay. For instance, I shouldn't care to make an inlay for a small cavity in the distal surface of a superior lateral with the broad mesial wall of the adjacent cuspid defying entrance. If, however, the same cavity were larger and encroached upon the labial surface of the lateral, a very satisfactory inlay might be made and inserted.

DR. GUILFORD.—To be with you to-night gives me great pleasure. It is the first time I have had the honor and pleasure of meeting the Ontario Dental Society, though I have heard of your good work, and have known a great many men from this province. Many of them have sat under my personal instruction, and, judging these men as students and representatives of Cana-



dian ability and integrity, I feel that I have a pretty good understanding of what the Ontario Dental Society should be. I am obliged to Dr. Willmott for his kind words, but I know that I do not deserve them all.

DR. CAPON.—I can hardly pass on to the discussion of this paper without congratulating the essayist on the able manner in which he has dealt with his subject. I would feel better able to discuss Dr. Guilford's paper if he had made a comparison using the high instead of the low-grade porcelain bodies. I feel something in the position of Dr. Guilford, because I am not only a porcelain worker, but I feel I can also manipulate gold, thus I discriminate between the use of gold and porcelain to the best of my ability. The first porcelain work I ever saw performed was at the Philadelphia Dental College. Dr. How, I think it was, gave his clinic on porcelain inlay work, and I thought from that time that porcelain will claim a place as a material for fillings. So, I bought a part of the system he was showing (I could not afford to buy the whole system) and I took it home with me and worked that summer at home, and then took it back to Philadelphia with me. I have worked from that time on, so that I feel pretty well able to judge where a porcelain filling should be inserted, and where a gold. In many cases a gold filling is particularly indicated, when the mere fact of durability is to be considered. I have heard it said that porcelain is the ideal filling, but I cannot go that far, although I have seen fillings that I put in twelve or thirteen years ago, and which are beautiful to-day. I feel that porcelain has come to stay, and I always say to students, go right on with your porcelain work; don't mind about the cement question, for the proper cement may never come. I noticed to-day that the system that I have been using is that which is used by the most expert workers in porcelain of the day. To me, the high-grade porcelain is the only one, and the low-grade should be used only under certain conditions. Now, with high-grade bodies, and the platinum matrix, one can get a satisfactory filling. The lower grades will not work as well in contour work as the high-grade bodies, on account of its great shrinkage. I may say that as we go on from year to year things are being invented to assist us in everything pertaining to porcelain work. I may say Dr. Land (who must be acknowledged as the first inventor of porcelain inlays) sent me some time ago a compound for porcelain inlays, which is painted and burnt on after the platinum matrix is stripped off. It will retain the porcelain inlay without the slightest under-cut in the porcelain, and it is almost an impossibility to break it from the cement. In some mouths cement will be durable for years, but such mouths are indeed exceptions, and since we cannot always get mouths of this kind to put fillings in, we must find something that will work satisfactorily in more imperfect

mouths. Sometimes, when a patient comes in to have a filling inserted, and you volunteer the information that you would like to insert a porcelain filling, you will invariably be asked, "Which will last the longer?" Now, of course, there is only one answer to that question. Then, of course, other patients prefer porcelain to gold, inasmuch as they do not care to have a conspicuous gold filling, though they know that porcelain may not last as long as the gold.

J. F. ROSS (Toronto).—I think the essayist has so ably handled his subject that he has left very little room for discussion. I still say, as I have always said, that gold is the "king" of filling materials, and until our mode of anchoring porcelain fillings is more perfect, much judgment in the choice of cavities must be exercised, or porcelain will soon come into bad repute. As a general rule, where sufficient space can be obtained, or where the patient is too nervous to allow the operator to do good gold work, porcelain can always be used to good advantage independent of tooth quality.

DR. HENDERSON.—I would like to ask Dr. Mills if the cement he described this afternoon would be adaptable to porcelain work.

DR. MILLS.—I have not had any experience in the use of my cement in this way. I use it only as a cavity lining, and not to serve as a retainer, but I think it takes too long to harden for this purpose, for although it seems to harden within a few minutes, it is really only hard on the surface.

DR. CROSS.—I would like to have a point made clear. Dr. Guilford says that one advantage that gold has over porcelain is that gold is in direct contact with the walls of the cavity. How is this an advantage over a porcelain filling thoroughly adapted in a cavity, and set in with cement which it is impossible to squeeze out?

DR. GUILFORD.—When you put cement in a cavity and then insert the inlay, there is no contact between the porcelain inlay and the cavity walls, because you cannot get rid of the intervening thin layer of cement. With a gold filling the gold is in actual contact with the cavity walls.

DR. BURNS.—I have had some experience with porcelain work. Some years ago, about the time that Dr. Capon was obtaining his first insight into porcelain work, I was in Detroit, and was not interested in dentistry very much, but took great interest in porcelain fillings, for I thought porcelain was going to eclipse everything, so that when I started to practise I had a porcelain furnace, and now I speak not only from my own experience, but from my deceased father's as well, who was a fairly clever operator, that the work did not turn out satisfactorily, not owing to the porcelain, but from the cement. But, it has always struck me that when we shall get a perfect cement then we will



be able to have perfect porcelain fillings, and when we have a perfect cement porcelain will not be required.

DR. WILKINSON.—My first impressions of porcelain fillings were unfavorable. More failures than successes presented themselves. However, I now know that porcelain work is good and useful, when the cases are wisely selected, and the fillings are successfully prepared and adapted. It is not well for expert porcelain workers to cast unfavorable reflections upon gold, nor, on the other hand, for those who favor gold, to condemn porcelain work. I refer to private practice and intercourse with patients.

DR. GUILFORD.—There is nothing that an essayist likes so well as to have his paper well discussed. I am glad that my paper has been discussed even to the extent that it has. I have but a few words to add, and these are in regard to porcelain. It is still in its infancy, and great allowances must be made for it at present. Dr. Reeves, of Chicago, declares that the trouble with porcelain is that it is too translucent. He says that if you look at the filling at the time you insert it, and then examine it later on by a stronger light, it will have a dark look. The way to avoid that is to first place what is known as a "foundation body," and then on top of that a layer of coloring, then the enamel, which will give the closest resemblance to the natural tooth. Again, one person asserts that when porcelain is nicely fitted into the cavity the cement will not wash out, while another declares that if it does wash out it will be to such a small extent that it will make no material difference. Time and experience will settle all these differences of opinion, and in the meanwhile it behooves us to experiment with this material, which promises so much, and strive to eliminate any objectionable qualities it may possess, while improving and developing its better features.

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## DON'TS ABOUT ALVEOLAR ABSCESSSES.

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BY J. B. WILLMOTT.

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Read before the Toronto Dental Society, March, 1903.

Don't treat alveolar abscesses having a fistulous opening through canal of the tooth, and leave the canal open.

Don't treat such an abscess with carbolic acid, or any drug that will harden the contents of the pus sac.

Don't inject such an abscess every day with an irritant disinfectant; give nature a chance to heal it.

Don't inject dioxogen through the apical opening into a blind abscess; the sudden liberation of gas will make trouble.

Don't practise "immediate root filling" in the treatment of any form of alveolar abscess.

## A STUDY OF CULTURES MADE FROM DENTAL CARIES.

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BY DUPEAU AND MILLS.

Students in Bacteriological Laboratory of the R.C.D.S. of Ontario.

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*Technique of Procedure.*—Four Petri dishes were thoroughly sterilized in hot air. Two tubes each of previously sterilized gelatine and agar-agar were melted, and the contents of each poured into one of the Petri dishes. From the deeper layers of a cavity in a patient's tooth portions of caries were removed and submerged in the gelatine while it was still liquid; and from the more superficial layers of another cavity caries were taken and smeared over the surface of the agar-agar, after the latter had hardened, some portion also being imbedded within the same. The dishes containing agar were placed in the incubator, while the gelatine was left out to harden and remain so, it melting at the temperature within the incubator. After twenty-four hours no particular growth was noticed in any of the media; but after forty-eight hours a growth, rather several of them, of spheroidal shape, were seen on the surface of the agar, but no change as yet in the gelatine. The odor which escaped from the Petri dishes was putrid, to say the least of it. From the growths on agar, a single colony was transferred to a slant of glucose agar and smeared over the same; a stab also being made in the medium from the same inoculation.

After forty-eight hours the growths were plainly visible, and spread rapidly over the surface of the glucose agar, with no tendency however to liquefy the latter. The growth also followed the direction of the stab; but after several days even no formation of gas was noticed.

After three or four days growths appeared in the gelatine, and a day or so later the medium began and continued to liquefy. From the culture on the slant of glucose, an inoculation was also made in nutrient bouillon, on which after forty-eight hours a thin film was noticed, which went to the bottom as sediment on shaking.

*Study of the Growths Under Microscope.*—Stained slides and hanging drops were made from the growths on the agar, gelatine and glucose. In the stained preparations from agar were seen plainly the three varieties of cocci: strepto-, staphylo-, and diplococci, and a few bacilli. In the slide from gelatine were seen cocci, mainly streptococci, spirilli and a few bacilli. A stained slide from the glucose growth showed an exceedingly large form of cocci, arranged very symmetrically, like the cells of honeycomb. No other form was seen in this slide.



In the hanging drop from gelatine, the organisms were seen to be very motile, the spirilli and streptococci especially darting quickly across the field. In the hanging drop from the glucose no motion was observed, the cocci apparently being too thickly arranged.

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## EXPERIMENTS WITH TREATMENT OF PUTRESCENT PULP CANALS.

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BY A. D. A. MASON AND HAROLD CAMPBELL.

(In Laboratory of Royal College of Dental Surgeons of Ontario.)

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A number of putrescent teeth were secured from infirmary, which were treated as follows:

After having removed the contents of the pulp chambers and all external decay, and rendered the external surfaces of teeth aseptic, the pulp chambers were treated in the following manner: (*a*) Into No. 1 was placed a treatment of oil of cloves (after a growth had been obtained from the pulpal end of canal). This was sealed, and left for seven days, at the end of which time sections were made half-way down the root and at apex. Inoculations were made with the contents at these points with no growth. Conclusion: Cloves disinfected to apex. (*b*) Into No. 2 tooth was introduced a treatment of cassia (treated as before stated). On section, growth was obtained from apex, but not at mid-section. (*c*) Into No. 3 tooth was introduced a treatment of carbolic acid (treated as No. 1). On section, growth was obtained from apex, and also from mid-section. (*d*) Into No. 4 tooth was introduced a treatment of campho-phenique (treated as No. 1). On section, no growth at mid-section, slight growth at apex.

Owing to the difficulty of getting good specimens in the Infirmary, our experiments were not as satisfactory as they might have been, and, owing to our limited time in the bacteriological laboratory, we were unable to experiment on more than one set of specimens.

## Clinics at the Ontario Dental Society.

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### DIATORIC TEETH IN CROWN AND BRIDGE-WORK.

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BY W. A. BURNS, ST. THOMAS, ONT.

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In writing this article I must first acknowledge my indebtedness to Mr. Sykes, the American representative of the Claudius Ash Company, who, at the meeting of the Western Ontario Dental Association, in St. Thomas, last June, drew my attention to the Ash swager, and to its utility in utilizing Ash diatoric bicuspid and molars as dummies in bridge-work. For some years previous I had been experimenting with different swagers, etc., attempting to use these and other diatoric teeth, and had been modifying the teeth to suit the swager used. Since meeting Mr. Sykes the problem has been solved. Bran, bird-shot, modelling compound and various other substances had been utilized as a swager, but unsuccessfully. The principle of the rubber swager solved the problem.

The applicability of the modification of accepted principles of modern crown and bridge-work as hereinafter set forth are limited only by the unfitness of the Ash and other diatoric teeth, which, of course, were intended primarily for rubber denture work.

#### CONSTRUCTION OF BICUSPID AND MOLAR DUMMIES.

*Backings.*—In this and all other modifications hereinafter described, backings must be of pure gold, of from 34 to 36 gauge. Take suitable molar bicuspid tooth; work gold backing with fingers over the same, so that in swaging it will not buckle. Imbed crown of tooth in dental lac or sealing-wax in the lower die of swager, adjust the swager and strike up with plunger. On removal from the swager the backing will be found perfectly adapted to the tooth, and the gold broken at the transverse and perpendicular openings. Trim off the superfluous gold from the margins. Make a not too compact rope of gold foil and pass through transverse openings; pack foil loosely in perpendicular opening; paint tooth backing and foil liberally with borax. Place solder necessary to make compact mass of backing and foil over perpendicular opening in tooth; solder all together in open flame, without investment either, in Bunsen or on ordinary asbestos pad, in preference the latter. In assembling the teeth for a bridge each and every dummy must be constructed separately and completely, otherwise the porcelain will check by the natural contraction of the solder, which difficulty is overcome if the dummies are made



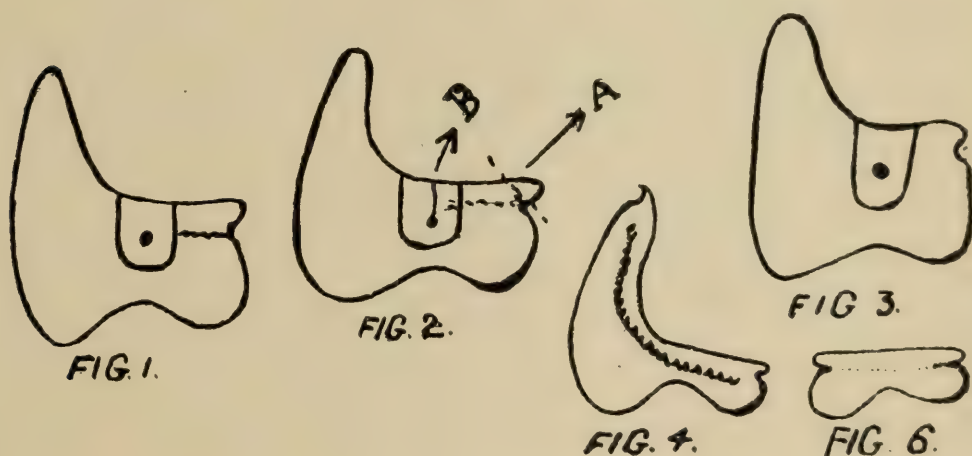
complete separately, and afterwards assembled and soldered by the ordinary method.

*Repair.*—If an Ash diatoric dummy be broken, it is very easy of repair in the mouth without removal of the bridge.

Diagram No. 1 is a section of a diatoric as it appears in an ordinary bridge.

If necessary to replace one of these teeth, take a diamond disk, or thin carborundum stone; grind off the shoulder "A" and cut out the slot "B," as shown in the dotted line, Fig. 2. The tooth is then ready to be cemented to the bridge, and leaves the bridge practically as strong as before.

*Richmond Crowns.*—The attachment to the root is constructed either with or without the band by the accepted methods of practice. Take an Ash old style diatoric tooth suitable to the case, grind and fit. Then swage backing of pure gold thereto, as



hereinbefore described; trim, invest tooth and attachment; fill in all interstices loosely with gold foil and solder in the usual way.

The advantages of this crown are obvious, viz., its translucency at the incisive edge, and its easiness of repair; but, owing to the thickness of the ordinary diatoric tooth its applicability is not of a very extensive range. Its repair in the mouth is so simple as almost to preclude description. All that is necessary is to grind out the transverse attachment in the backing, trim off the larger end of the dovetail in the tooth, and the attachment is as easy and as strong as a Mason detachable.

The paucity of forms only limits the use of these teeth, whose attachment depends not only on the ordinary dovetail, but also on the countersunk shoulder which is transversely of the tooth.

We all recognize certain conditions in crown work wherein the all-gold crown is not advisable. The following procedure to a certain extent obviates that difficulty.

The figure No. 3 is an ordinary Ash diatoric bicuspid.

Figure No. 4 is the same bicuspid, but ground with a groove

countersunk along the dotted line. To utilize this prepared facing in bicuspid caps, with porcelain face and top, grind and trim tooth and root and adjust band; select suitable tooth, grind as in foregoing figure to fit root, occlusion and band; swage backing over facing as described in former methods; trim band and adjust facing thereto; burnish band to approximate backing, and solder all together from the inside either in the open flame of the Bunsen burner, or on asbestos pad with blowpipe. When completed this makes a very artistic and complete crown.

Another condition we all frequently meet with is where a gold crown occludes with an artificial plate. Unless the cusps of the crown are abnormally heavy, it is but a very short time before they are worn through. This difficulty is overcome easily as follows: Construct the band in the ordinary method, grinding, as is usual in these cases, to give plenty of thickness in the occlusion. Adjust the band, take porcelain tooth suitable, and grind so that it approximates band and occlusion. When completed, it will appear as in Fig. 6.

The dotted lines represent a countersunk groove around the porcelain tooth. Swage backing over porcelain, adjust to band and solder from inside, as foregoing description.

Of the latter two styles of crown I have had some six years' experience, entirely satisfactory. The use of molar and bicuspid dummies has been also entirely satisfactory. The use of the Richmond modification has been limited too much by the lack of variety in the shapes of teeth to give a decided opinion as to its success.

I have also experimented with many modifications of the methods hereinbefore described, but the description thereof would perhaps be too lengthy for publication. Perhaps at some future time I may give a synopsis of my successes and failures in this line of work.

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## PURIFYING AND PRESERVING SHEET WAX.

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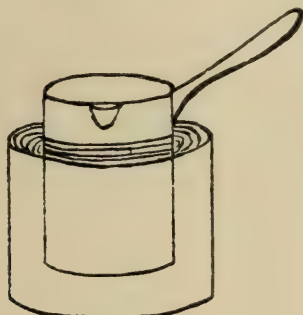
BY W. A. BROWNLEE.

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A good formula for sheet wax is one pound of beeswax and half a pound of paraffin, melted together, and thoroughly mixed. To renovate the wax after it has been used, put three quarts of water in a pot, heat to the boiling point; add to it one ounce of oxalic acid and immediately throw in the waste wax. After it is melted allow it to boil for five or ten minutes, then set it in a



place where it will cool slowly. When it is hard, the impurities can be scraped from the under surface. It is then ready to be made into sheets. To prevent the wax from being discolored by overheating, it should be melted in a double boiler. (Fig. 1.) Make three or four receiving trays of common tin-plate, such as tin-



**FIG. 1.**

smiths use, about seven inches square, with a raised edge about one-quarter of an inch high; amalgamate the surface of these trays with mercury to prevent the wax from sticking to them. Set the trays on a level surface and pour the melted wax into them quickly. With a little experience, the sheets can be made just the proper thickness for use. When the wax becomes set, chill it in cold water and it is easily removed from the trays. Cut each sheet into four parts, and each part will wax up one model.

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## ALL-BURNISHED GOLD FILLING.

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BY J. MILLS, BRANTFORD, ONT.

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In giving a description of my clinic on all-burnished gold filling, I might say that about two years ago, I commenced a series of experiments to try and find out where the dust came from that I had frequently observed dropping on the rubber dam during the operation of inserting a gold filling. For this purpose, a recently extracted tooth had a cavity prepared with perfectly-polished margins, and was held up in bright sunlight, and pressed with a hand plugger, or struck with the automatic plugger, when quite a little shower of finely-pulverized tooth substance was observed dropping at each stroke of the mallet. The cavity was then partly filled with gold, and the layers overlapping the cavity margins were built back with an instrument, when the same dust was observed dropping at each stroke of the mallet. The cavity

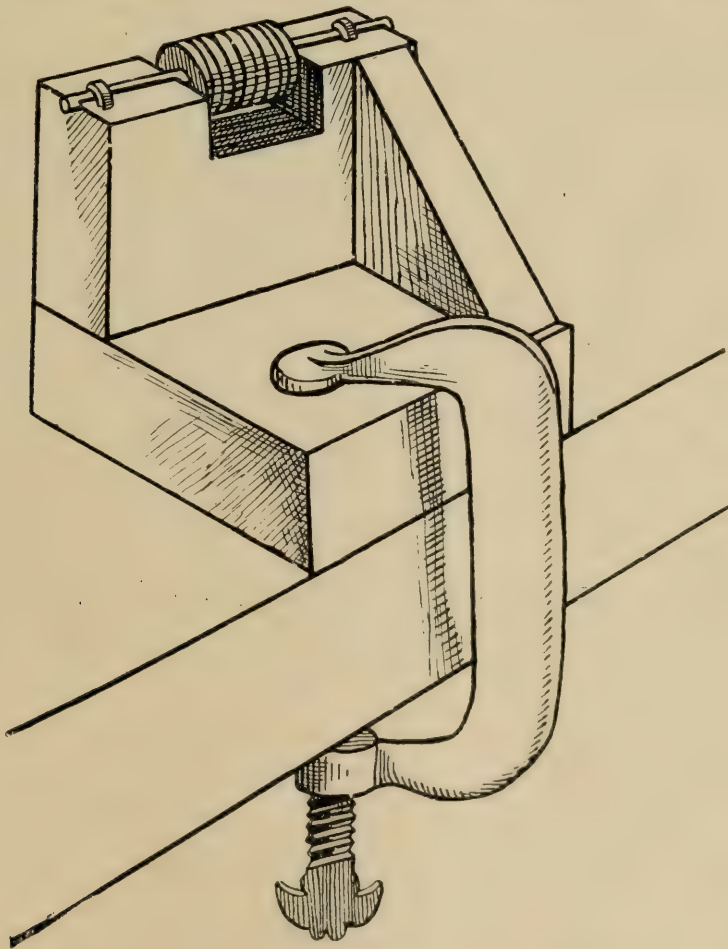
was then partly filled with gold, and the layers overlapping the cavity margins were built back with an instrument, when the same dust was observed dropping from behind the gold. This seemed to prove that the surface of the cavity is more or less pulverized from the stroke of the mallet, or even with the push of a sharply-serrated hand-plugger. This pulverized tooth substance could be seen when the densest tooth was struck with a very finely serrated foot point. With a view to overcoming this difficulty, I commenced experimenting with various varnishes as cavity linings, intending only to burnish the first layer of gold, when I accidentally discovered the fact that gold would weld by being lightly rubbed with a smooth burnisher. There is no special cavity preparation necessary for this kind of filling. If you do not wish to line the cavity, start your filling by wedging as usual, and after the first piece is anchored, commence burnishing the filling in with any shaped burnisher that will fit the cavity. Burnishing will not disturb the softest tooth margin. The instrument used must be perfectly smooth. The varnish with which I line soft teeth is composed of white shellac, two parts, and gum spar one part, dissolved in pure alcohol. Spar is very difficult to cut, taking from two to three weeks, when kept at a moderate heat, and longer if cold. The method of applying the varnish is to lift on the end of a toothpick a very small drop of varnish and rub quickly over the surface of the cavity, and after waiting about a minute pat in with pliers from two to four thicknesses of Watts' crystal strip. Be sure there is enough gold to cover the cervical margin and all the lower third of the cavity walls. Then take a piece of separating rubber and use as a swage to force the gold into every part of the cavity, using rather heavy pressure. This drives the gold into the sticky varnish, and also forces the varnish into the dental tubules, which have been thoroughly dried out with absolute alcohol beforehand. Wait about a minute, and then thoroughly burnish the gold into the surface of the cavity and over the margins. Now adjust matrix, if one is to be used, and commence burnishing in your filling at once. I have not the time now to go into the technique of burnishing gold. The advantage of a burnished gold filling over a malleted one is: (1) The margins are infinitely more perfect, the softest margin not being disturbed in the least. (2) The time required is less. (3) It is much easier for both operator and patient. (4) The filling is a perfectly homogeneous mass, with no air-spaces and no flaking. The weld is quite equal to a malleted filling, even for a thin incisal edge.



## TRUEING LATHE WHEELS.

BY W. G. L. SPAULDING.

An eccentric or an irregular lathe wheel is trued in the following manner: First, make sure that the stone is solidly mounted on the chuck, and firmly attached to the lathe. The lathe, of course, should be solidly fixed to a heavy bench, never on a wobbly stand, for any kind of use. Place a few iron bolt washers (about 5-8 in. with 5-16 in. aperture, a common size) on an old steel instrument handle, much smaller than the aperture, and secure by staples to a wooden block, cut out to give free play to the washers on the spindle. (See cut.) These, when brought up to the lathe-



stone, run at high speed, turning on the spindle in an eccentric, striking it with rapid blows. If the block be shifted back, these blows will fall only on the high parts of the stone, pulverizing the surface till it is reduced to a perfect circle. Shellac and cement stones alike can be trued in this way.

An engine wheel-stone out of true is a splendid thing to get new patients for your fellow-practitioners. It sounds to a patient "like riding in an old freight-car over a rocky road-bed." Put a large, coarse stone in the lathe, and use a fair speed. With the stone to be trued in the engine, hold the hand-piece so that the

small stone revolves across the large one, being careful not to allow any of the grindings to find their way into the hand-piece.

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## Dental Education in Various Countries\*

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Dr. Quedot, Paris, said that dental surgery is a branch of medicine, and that during the preliminary education of the future dental candidate nothing should be neglected that could in any way develop the literary, scientific, and artistic sense of the student. Like the physician, the dentist should possess a good basal knowledge of literature and science, as these are important factors in carrying out the duties of his calling.

Dental education, he claimed, comprises two distinct parts—namely, the scientific group and the technical group of studies. The technical group is the application of the knowledge acquired from the scientific group. The first duty of the dental student should be to acquire a sufficient degree of knowledge of anatomy, histology, pathology, bacteriology, and of all other branches which strictly speaking cannot be called medicine, but which are, however, the basis of medicine, and of all its specialties. After acquiring the necessary preparatory education referred to, and only then, should the student be permitted to enter upon the study of the dental branches, in our clinics as well as in the several dental schools.

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## REPORT OF DENTAL EDUCATION IN ITALY.

BY DR. VINCENZO GUERINI.

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*Gentlemen*,—I wish to bring before your consideration several general ideas regarding the subject of dental education, but before doing so, I must refer to a special feature of dental education in the country which I represent, as this is in strict accord with the ideas which I will now discuss. For about twelve years there has been a law in Italy which requires that all dentists must be holders of the degree of doctor of medicine before they can be allowed to practise their profession. This legislative measure presents great inconvenience, as I have on several occasions endeavored to demonstrate. I have pointed out the necessity that odontology should be taught as a separate and autonomous science, and not as a simple branch of general medicine. I found myself in the necessity of discussing this topic with the *mede-*

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\* We are indebted to the *Dental Cosmos* for printers' proofs of these articles.



*cins-dentistes*, and as soon as this was taken up I found that in order to defeat my adversaries the first thing I had to do was to recognize whatever truth could be found in their arguments, this being in my estimation the only way of clearly demonstrating the fallacy of their conclusions.

In the arguments advanced by the *medecins-dentistes* we find some truthful assertions, viz.: That in order to practise dentistry upon a scientific basis, it is necessary that the practitioner should possess a rather extensive medical education. As dentists are called upon to treat living organs, it is indispensable that they should thoroughly understand all the disturbances that may affect these organs, all the organic or extra-organic causes which may bring them about, and all the possible relations of dental and peridental diseases to the rest of the organism. If this be admitted, it follows as a rational consequence that the medical education of dentists must not be too limited nor too superficial, as in order to be in a position to understand thoroughly everything concerning dental diseases and their relations to morbid conditions of the organism it is necessary to possess a large share of medical science. I am therefore convinced that dental schools will have to extend gradually the scope of medical teaching, as the extent of the medical branches taught in dental schools at present is certainly insufficient. As an example, I will quote from the report of Dr. Charles Godon, of Paris, in his work, "Evolution de l'Art Dentaire."

From this report we gather that in the Ecole Dentaire of Paris about four-fifths of the total time is devoted to technical teaching and only one-fifth to the scientific and medical subjects, to the importance of which we are now referring. If we consider that the dental course covers three years—that is, about thirty-six months—it is easy to see that by this arrangement the entire medical education required from the dental student could be given him in seven months, including in this time vacations and holidays. Now, you know that medical students who devote from five to six years to the study of this science leave the school after this time with a very incomplete knowledge of medicine. The time devoted to the teaching of medical branches in dental schools is very limited, and therefore the student can acquire only a very limited and superficial knowledge, which will not help him to understand the pathology of the dental and peridental organs, and the complex relations which exist between these parts and the rest of the organism from the points of view of the etiology, pathology, and therapeutics of the disorders of which these organs may be the seat.

It is true that it has been decided to increase the course to four years, but, as far as I am aware, this fourth year will be devoted entirely to technical teaching; therefore, even with a four years' course, the medical education of dentists will remain just as imperfect and insufficient as it is at present. I believe in the

necessity of extending the course to a five-year one, and during this period the dental student should be taught both general medicine and dentistry. I believe further, that the curriculum should be arranged in such a way that the student might be able to devote at least four hours a day to medical subjects, and the remaining five or six to strictly technical subjects. Five or six hours a day during five years should be sufficient to make skilful dentists, and on the other hand, four hours a day devoted to medical subjects during five years should create dentists possessing a reasonable amount of medical education. They would have an amount of medical knowledge at least sufficient for the practice of their profession upon a scientific basis.

Regarding the question as to whether medical subjects should be taught in the dental schools or in the medical schools, I will positively answer that the medical subjects to be taught to dentists should be given by teachers making a specialty of these subjects in their bearing on dentistry. The necessity that the medical education of dentists should be a special one is certainly evident. Let us take, as an example, anatomy. On the bucco-facial region the anatomical training of the dentist should be more complete than that of the physician, just as, on the other hand, the anatomy of other regions could be suppressed from the curriculum or given in a more superficial way without at all injuring the dentist's education. For similar reasons, the teaching of other branches of the medical programme in dental schools should differ from the teaching of the same branches in the medical school.

To summarize, we will say that for dental students the course should be altogether a special one, and its purpose should be to impart to the student without the slightest loss of time the greatest amount of medical knowledge that will be useful to him in the practice of his profession.

I also wish to call your attention to the question of *preliminary education*. Unfortunately, this question cannot be treated in a general way, because of the great differences presented by the organization of primary or elementary education, especially of the secondary education, in different countries; notwithstanding this difference in organization, however, I believe that the total duration of the studies that dental students should take up before entering institutions of higher education should not vary a great deal in the different countries. This involves, say, about twelve years. I believe that the preliminary education of dental students should be the same as that required from the physician, the lawyer, the engineer, etc. With a preliminary education of of this sort lasting twelve years, it is possible to undertake the study of dentistry after having acquired a good literary and scientific education, comprising among other things the study of ancient and modern history, physics, chemistry, natural his-



tory, mathematics, languages, etc. All these studies are apt to develop the intelligence of the student, and will serve the purpose of excellent preparation for the study of dentistry, permitting the dental student to assimilate easily the knowledge which will be imparted to him in the professional schools. The better educated the dentist is, the more he will be respected. It is essential that he should cease to be inferior to the physician from lack of either general culture or scientific requirements. He should rise to the same level as the physician, and should be prepared to intelligently discuss with him any scientific subject. He should be able to write correctly and easily, in order to be in a position to increase the literature of the profession by contributing works on dental topics. It would be a shame for the profession, if the greatest part of its literature were written by physicians, and not by dentists, as has already been asserted.

For the foregoing reasons, I am led to express the wish that dental candidates should have a more complete preliminary education, and that in the curricula of dental schools more time should be devoted to the study of medical subjects.

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## REPORT OF DENTAL LEGISLATION IN SWEDEN.

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BY DR. FORBERG.

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The laws regulating dental practice in Sweden are very old, and as they have been considerably changed since the establishment of a dental institute, I deem it best to give only such points as will serve to make the subject clear. Since the formation of this institute all dental instruction is given there, and the studies are obligatory.

Every one wishing to matriculate at this dental institute must present himself before the dean and produce his certificate of birth, testimonials as to his moral character, etc., from his clergyman, and a certificate from a high school that he has passed his final examination, which qualifies him to enter a university (maturity examination). This certificate must show that he obtained good marks in mathematics and physics, otherwise he must pass special examinations in these subjects.

There is only one dental institution in Sweden. It is the Dental Department of the Caroline Medico-Chirurgical Institute of Stockholm. It is a state institution. The course comprises three years, of about eight months, each year divided into two terms. During the first year the student attends the lectures in the medical department on medico-scientific subjects, in courses specially designed for dental students. At the end of the year the student is examined in these subjects. This is called

the "dental candidate examination," and if passed it entitles him to matriculation in the Dental Institute. Here he receives practical dental instruction for two years.

The final examination before becoming a legal dentist is given by the professors of the dental department and the professor in general surgery of the medical faculty as examiners, before an examining board consisting of the inspector (dean) and two practising dentists (chosen yearly) as censors. When the candidate has passed his examinations at the dental department he receives a certificate, and is referred to the Royal Medical Board, from which he receives his diploma as authorized dentist (Tandlakare). The Royal Medical Board (Kongliga Medicinal Styrelsen) is therefore the licensing board.

Women have the same rights and privileges as men in regard to the study and practice of dentistry. Physicians have the right to practise dentistry without being obliged to pass any examination.

Dentists are allowed to prescribe drugs, and even poisons, for external use, but the administration of a general anesthetic must take place in the presence of a physician.

There are about three hundred dentists in Sweden, of whom more than one-third are located in Stockholm. There are three Swedish dental journals, *Nordisk Tandlakare Tidskrift* and *Odontologisk Tidskrift*, of Stockholm: and *Reflector*, of Gothenburg. The Swedish dental societies are: Svenska Tandlakare-Sällskapet, Göteborgs Tandlakare-Sällskapet, Skaraborgs Tandlakare-Sällskapet, Malmö Tandlakare-Sällskapet, and Odontologiska Sällskapet. The members of the last four societies are at the same time members of the Svenska Tandlakare-Sällskapet and of the Scandinavian Dental Association, which is common for the three countries.

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## REPORT OF DENTAL EDUCATION IN ONTARIO, CANADA.

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BY CHARLES E. PEARSON, L.D.S., D.D.S., TORONTO, CANADA

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Regarding the three questions proposed by the International Commission of Education, your representative considers it advisable to quote from a very able article which appeared in the *Journal of the British Dental Association* for April and May, 1901. The writer of the article, A. E. Webster, D.D.S., M.D., professor of orthodontia and demonstrator in operative dentistry in the Royal College of Dental Surgeons, is the editor of THE



DOMINION DENTAL JOURNAL, and is a recognized authority on educational matters. The article referred to is detailed and complete, giving the full requirements, subject by subject, for matriculation to the school of the Royal College of Dental Surgeons, with examination papers, and a detailed statement of the course of studies in dentistry, also giving examination papers.

The quotations from this paper of Professor Webster's furnish answers to the three questions asked by the International Commission of Education:

Question 1. "What are the preliminary studies to be required of students before beginning their professional education?"

"The by-laws of the Board of Directors provide that every person who wishes to practise dentistry in Ontario shall matriculate in the Royal College of Dental Surgeons of Ontario. The board does not hold a matriculation examination, but accepts an official certificate of matriculation in arts in any Canadian or other recognized university, or of having passed the Ontario Educational Department junior or senior high school leaving examinations. These examinations are conducted by the Education Department and are held simultaneously at every high school in the province once each year. All candidates write on the same examination papers. The answers are read and graded in the City of Toronto by teachers who gather there for that purpose. The junior leaving examination, which is the lowest standard of matriculation that the Royal College of Dental Surgeons will accept, embraces the following subjects and standards:

*Part I., Junior Leaving Standard.*—The subjects prescribed are: Reading, drawing, geography, botany (or agriculture), writing, with book-keeping and commercial transactions, English grammar, English literature, arithmetic and mensuration, English composition and history. *Part II.*—The subjects prescribed are: English grammar and rhetoric, English composition, English literature, ancient history, arithmetic and mensuration, algebra, geometry, physics and Latin, and one of the following groups:

(a) French and Greek; (b) German and Greek; (c) French, German, and chemistry; (d) French, physics and chemistry; (e) German and chemistry; (f) botany, physics, and chemistry.

"The arts matriculation of the University of Toronto is based upon and is similar to that of the University of London, Eng."

Question 2. "In what are dental studies to consist, how long ought they to last, and what should be the order of the programme?"

The course has been three terms of seven months' duration, but after 1902 it will be a four years' course of the same duration. The three years' course embraces the following:

First Year or Freshmen Year: Anatomy (general). Fifty

lectures: Minute anatomy of the bones and muscles of the head and neck.

Chemistry. Sixty lectures, including chemical physics, chemical nomenclature, symbols, combining weights and quantivalence and physical properties of the principal elements, and the preparation and chemical properties of oxygen, hydrogen, nitrogen, chlorine, sulphur and potassium.

Histology. Thirty lectures, including general histology and minute histology of the human teeth.

Bacteriology. Twenty lectures and demonstrations.

Comparative dental anatomy. Ten lectures.

Operative technique. Fifteen lectures, embracing topographical anatomy of the human teeth; dental caries; discussion of filling materials; cavity classification, root-canal medication and filling. Students must attend the technique laboratory eight hours each week during the session. In this course the student is expected to study the structure of the teeth and the anatomy of the surrounding parts. He must carve at least sixteen teeth from celluloid, making minute drawings of both longitudinal and cross sections of the teeth; practise root-filling and medication; study and practise the use of instruments; form cavities in the carved celluloid teeth and fill them.

Prosthetic technique. Fifteen lectures, embracing the extraction of teeth, impressions, base-plates for artificial dentures, air-chambers, clasps, casts and dies, articulation of full dentures, manufacture of artificial teeth-crowns. Students must attend the prosthetic laboratory two hours each day of the session, and construct the following pieces: Partial upper denture in vulcanite; partial lower with vulcanite clasps; partial upper with metal clasps; repair vulcanite case; full upper and lower plain teeth, upper vulcanite, pink gum, air-chamber, lower cast metal; full upper and lower gum teeth, upper swaged aluminum, black vulcanite attachment, lower cast-metal base with pink gum; partial lower vulcanite with swaged metal stringer; partial upper swaged metal base; four gum teeth with rim and clasps, swaged upper metal base, wire edge, wire loops, air-chamber; Richmond crown; all-metal bicuspid crown; all-metal molar crown; metal bicuspid crown with porcelain face; Logan crown ground and set on a suitable root. Each case must be made to fit suitable models provided in the technique laboratory, and have a ticket attached to it when handed in for examination, to show that the demonstrator in charge has directed and seen the work in progress.

Metallurgy. Fifteen lectures, including the properties of metals, alloys, amalgams, lead, antimony, tin, bismuth, zinc, cadmium, copper, iron, aluminum, mercury, silver, iridium, palladium, platinum, gold.

Second Year or Junior Year: Operative dentistry. Fifty lectures on development of the teeth, clinical history and pathology



of caries, pulpitis, pericementitis, and alveolar abscess; the composition and preparation of materials for filling teeth. The insertion of at least forty fillings in the teeth of patients in the infirmary.

Prosthetic dentistry. Fifty lectures. Extraction of teeth, composition and preparation of materials for taking impressions and for bases for artificial dentures; preparation of casts and dies for metal work; composition and manufacture of artificial teeth; the mechanical and esthetic construction of dentures on plastic bases; the construction and insertion of at least five artificial dentures for patients in the infirmary.

Crown and bridge-work. Sixteen lectures. The construction of two crowns and three bridges of three teeth each, on models prescribed by the professor in the department.

Orthodontia. Twelve lectures. A study of the materials used and their application; the construction and adaptation of one or more appliances to a suitable model.

Porcelain work. Five lectures.

Anatomy. Fifty lectures. Minute anatomy of the head and neck and general anatomy. Dissecting the head and neck and at least one other part, at the medical department of the provincial university.

Chemistry. Fifty lectures. The whole subject. Attendance in the chemical laboratory four hours a week throughout the session.

Physiology. Fifty-five lectures. Circulation, respiration, and digestion.

Medicine and surgery. Fifty lectures. Inflammation, healing, and reparative processes, treatment of wounds, luxation, and dislocation of the inferior maxilla.

Materia medica. Fifteen lectures. Weights and measures, source of preparation and mode of administration of, and medical and dental use of one hundred drugs. Prescription writing.

Third Year or Senior Year: Operative dentistry. Fifty lectures embracing the whole subject and including dental pathology. Each student must insert for patients in the infirmary at least forty fillings, twenty-five of which must be gold; successfully devitalize and remove the pulps of five teeth and fill the root-canals; insert porcelain fillings as directed by demonstrators.

Prosthetic dentistry. Fifty lectures covering the whole subject. Each student must construct and insert for patients in the infirmary at least five whole or partial dentures and also make a gum-section denture on a prescribed model.

Crown and bridge-work. The student must construct and insert at least three crowns or a bridge of not less than three teeth for patients in the infirmary.

Orthodontia. Ten lectures covering the whole subject. Each student must treat at least one case in the infirmary.

Dental therapeutics. Fifteen lectures covering the whole subject.

Physiology. Fifty lectures covering the general subject.

Medicine, surgery and general pathology. Fifty lectures. Students must treat such cases as come to the infirmary, and attend once a week the clinics of the Victoria Hospital.

Dental metallurgy. Twenty-five hours in the laboratory.

Bacteriology. Twenty-five hours in laboratory.

No candidate will be admitted to final examinations who does not present certificates to show that he has inserted for patients at least one hundred fillings, and at least eight whole or partial dentures. Fifty of the fillings and six of the dentures may be inserted in the preceptor's office.

Candidates must obtain at least 60 per cent. of the marks allotted on all examinations in order to pass. All practical work done through the whole course is examined and graded, and is counted a part of the examination, as much as the written papers.

Candidates of good moral character, 21 years of age, who have complied with the regulations and have satisfactorily passed all examinations, both written and practical, are awarded a certificate of license to practise dentistry in Ontario, and the title of L.D.S. (licentiate of dental surgery).

Question 3. "What branches of the studies taught in medical schools must the student of dentistry follow?"

This question is answered best by studying what has been adopted by our school, as stated in answer to Question 2.

#### PROPOSED CURRICULUM.

In conclusion, a proposed curriculum for the four years' course of the Royal College of Dental Surgeons of Ontario is appended. This curriculum for the course of four sessions is proposed to come into force on October 1st, 1903 :

*Add to present curriculum*—Physics, physical diagnosis, and anesthesia; the practice of medicine, electro-therapeutics, institutes of dentistry, to include history of dentistry, dental ethics, management of practice, advertising, etc.; laboratory, practical pathology; attendance at General Hospital.

*Re-arrange the work*—

First Year. Lectures—Histology, bacteriology, comparative dental anatomy, physics, materia medica, operative and prosthetic technics; commence anatomy. Laboratories—Histology, operative and prosthetic technics.

Second Year. Lectures—Therapeutics, orthodontia, crown and bridge-work, complete anatomy, commence dental pathology, operative and prosthetic dentistry, commence chemistry. Laboratories—Practical anatomy, operative and prosthetic technics, crown and bridge-work technic, orthodontia technic.



Third Year. Lectures—Metallurgy, electro-therapeutics, complete operative and prosthetic dentistry and dental pathology, complete chemistry, commence physiology, commence medicine, and surgery, and general pathology. Laboratories—Infirmary, operative, prosthetic, orthodontia, crown and bridge-work, chemistry, bacteriology, pathology, porcelain technic.

Fourth Year. Lectures—Complete physiology, complete medicine and surgery and general pathology, jurisprudence, physical diagnosis and anesthesia, practice of medicine, institutes of dentistry. Laboratories—Infirmary, operative, prosthetic, orthodontia, crown and bridge-work, porcelain work, chemical metallurgy, clinical medicine and surgery at the General Hospital.

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## REPORT OF DENTAL EDUCATION IN AUSTRIA.

BY RUDOLF WEISER, M.D., VIENNA.

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The first of the three questions proposed by the International Dental Federation reads as follows:

“What are the preliminary studies to be required of students before beginning their professional education?”

There can be little doubt that all Austrian dentists are of the opinion that from one who intends to devote himself to dentistry the same preparatory education should be demanded as from one who will go to the university or to a polytechnic school, or who wishes to perform his military services as a one-year volunteer.

For my own part, I cannot but feel that the curriculum at most grammar schools and higher schools in most European countries loudly calls for thorough reform. In view of the increasing influence of sociology and the stagnation of parliamentarism unceasing efforts are made to obtain for the members of the Sanitary Council such power in the departments of education as shall enable them to regulate the demands made upon the mental capacity of the young with due regard to the development of the rest of their organism, and to bring the ideals of mental education into harmony with the practical needs of political economy, instead of worshipping antiquated arrangements.

But the Austrian dentists are of the opinion that as long as admission to the university and the one-year volunteer service in the army is dependent on passing the matriculation examinations, the same should be required of those who intend to become dentists. For this opinion there are different reasons: First, the young and rising profession must desire that the social status

of its representatives does not undeservedly sink below that of other branches of the art of healing. We dentists will not profane the spiritual inheritance of a Wedl, Salter, Heath, Garretson, Tomes, Leber, Rottenstein, Magitot, Malassez, Muehlreiter, Albrecht, Mills, Underwood, Mummery, Miller, Zuckerkandl, Taft, Kingsley, Bonwill, Martin, Case, Essig, Brophy, Arkovy, Rothmann, Partsch, Sachs, Scheff, von Metnitz Bodeker, Walkhoff, Witzel, Ebner, Schaffer, Zsigmondy, Gis, Roese, Roemer, Preiswerk, and innumerable other researchers and promoters of our branch.

It certainly cannot be good for our science that less capable persons should receive official permission to enter it. Our calling cannot be raised in the opinion of the public, and of our colleagues the medical men, if in a country with compulsory military service the dentists should rank lower than the veterinary surgeons, and if practical dentistry is the refuge of such as do not get on well at the grammar school or the higher school.

Of not less importance is the moral factor, which is tellingly pointed out by the German teachers of dentistry in a memorandum to the Bundesrath of the German Empire. They say: "The demand for matriculation gains increased importance through the consideration that all the knowledge and accomplishments, the most thorough instruction, can be made useful only if the dentist, beginning practice with a really high conception of his calling, and with a large measure of faithfulness to duty, undertakes his task of making the progress of modern dentistry useful to his patient,—undertakes it with the moral maturity which is generally to be expected of older persons. Under present circumstances young men mostly enter the first class of the grammar school in their sixteenth or seventeenth year. Then they begin their dental studies, and mostly conclude them after three years, when they are in their twentieth year. Even supposing they then become assistants for two or three years—which is the case with only a fraction of them—they become independent at a time when in general they do not yet possess the manly stability and the mature gravity which are demanded by intercourse with the public and by responsibility in difficult situations, *e.g.*, administering narcotics, and in the carrying out with proper insistence the demands of dental science. No wonder, then, that many a one stumbles, and to his own detriment gives way to dangerous temptations; too often he has to lament that in his practice he should have turned from the creditable principles which he brought with him from the university, and should have taken to greedy bleeding of the public, because in that way it seemed possible to make money more quickly and easily. The measure of care, perseverance, thoroughness, and faithfulness to duty possessed by a conscientious dentist is particularly large; the great pains and the expenditure of time necessary—and which,



at the moment, considering their object, seem extravagant—often tempt the less serious, immature characters to neglect their duty, and all too often, instead of painstaking, thorough work, which alone can be successful, there is a scamping done with dazzling facility and rapidity.

Questions 2 and 3 of the International Commission of Education are:

“(2) Of what are dental studies to consist, how long ought they to last, and what should be the order of the programme?”

“(3) What branches of studies taught in medical schools must the student of dentistry follow?”

For the Austrian the answering of these two questions becomes decidedly easier, and the report will seem clearer if the order of the questions be altered.

Since the Austrian dentists agree in the principle that dentistry forms a branch of the healing art in general, which demands its special education and training, the matter to be presented now resolves itself into the discussion of Question 3.

As was referred to in my report in collaboration with Dr. Zsigmondy to the International Dental Federation, London, 1901, I here again give expression to the conviction that the unexpected and enormous development of the entire healing art, as a branch of human knowledge which it is quite impossible for one person to master completely, loudly calls for a reorganization of the course of medical study. On the part of students and practitioners it is sought, by the requirements of the people one is compelled to give the medical student first of all a three years' fundamental education, and then to divide the remainder—say two years—of his course into branch subjects.

A common medical foundation for all those who later will devote themselves to a special branch of medicine, affords, first of all, the advantage of admitting into the ranks of the profession only educated doctors with a wide mental horizon, and those whose powers of observation have been guided into the right channels; and secondly, such a foundation enables the student to decide on this special branch only after a deeper insight into the situation, and enables him with insignificant loss of time to change, if at the beginning of his special studies he should find that he has not chosen in accordance with his own inclinations and abilities.

In my opinion this general training to be demanded of all physicians should have to comprise the following departments: Descriptive anatomy, connected with practice in dissecting, physiology, histology, bacteriology, pathological anatomy, general experimental pathology, internal medicine, pharmacology, surgery, skin diseases, and syphilis.

It would be exceeding the limits of this report were I to point out in detail how important is each of the subjects above

mentioned to him who wishes to have a real right to the name of doctor. The only argument that I will bring forward for the importance of the demand is that he who inflicts wounds for curative reasons should be acquainted with the course of the arteries, with the lymphatic glands, with the stopping of bleeding, the nature of wounds, and their treatment. The proposal that one and the same patient be treated by two or more specialists would be practicable sometimes in large towns, but not in small ones, and the simultaneous treatment by several doctors will meet with peculiar difficulties as well as those of locality and time.

Having regard to our responsibility to our patients and the judicial authorities, the demand that medical practitioners should be acquainted with the appearance of syphilis and with the measures for protecting against its transmission is certainly amply justified.

As to the question, "Of what are dental studies to consist, how long ought they to last, and what should be the order of the programme?" On the ground of my own experience that even very talented and diligent Austrian physicians who, after finishing their medical studies, have devoted themselves to dentistry, cannot without danger be employed in a good practice in a large town before the expiration of two or three years, I think it necessary that students' theoretical and practical instruction in the purely dental subjects (that is, after completing fundamental studies, lasting four or six terms) should comprise five or six terms.

First Year. Morning—Descriptive anatomy, with practice in dissection; physiology, bacteriology. Afternoon—Practice in chemical laboratory; histology and microscopy.

Second Year. Morning—General and experimental pathology; pathological anatomy; treatment of internal disorders. Afternoon—Pharmacology; afternoon visit to the clinic for internal diseases; theoretic lectures on dental surgery.

Third Year. Morning—General surgery; special surgery of the mouth and maxillary sinus; skin diseases and syphilis; practical exercises in the preservative treatment of the teeth; phantom. Afternoon—Practical exercise in the surgery of the mouth and maxillary sinus (anesthesia); practice in topographo-anatomical dissection (throat, mouth, and jaw); practical exercise in the surgery of the mouth and maxillary sinus (narcosis).

Fourth Year. Morning—(8 to 9) Dental metallurgy; (9 to 12) practice in conservative dentistry (on the patient). Afternoon—(1 to 3) Practice in the surgery of the maxillary sinuses (anesthesia); (3 to 7) practical exercise with artificial teeth and jaws.

Fifth Year. Morning—(8 to 11) Practical exercise in conservative dentistry; (11 to 1) orthodontia. Afternoon—



Crown and bridge work; obturators; mandibular splints. Examinations and services as demonstrators for students of lower years.

A glance at this curriculum shows—

(1) That a dentist who has passed through it will be thoroughly competent to deal with every case that comes within the limits of his profession; it allows—

(2) Of the student's altering his plan of study in his third year without incurring thereby any serious loss of time or material disadvantage. If he should at that stage of his career have come to the conclusion that he has no vocation for the profession of dentistry; it also makes possible—

(3) The completion of the course of study in eight terms, if the educational authorities should think fit to sanction such an education on the ground of pecuniary difficulties, in exceptional cases.

This curriculum would have for its object the giving of exhaustive and detailed instruction, both theoretical and practical, in the following branches of technical knowledge: Theoretical lectures on the means known to dental surgery for the preservation of the teeth, and including the art of preparing and fitting artificial teeth and jaws; special surgery of the mouth and maxillary sinus, including practical exercises; practical exercises in the preservative treatment of the teeth; practical instruction in the preparation and fitting of artificial teeth and jaws; orthodontia; dental metallurgy; electrology.

The author of this report has ventured to conclude it by laying before his readers an approximate suggestion for a curriculum drawn up as a test for himself to show whether his demands, as explained and elaborated above, could be brought into harmony with actually existing circumstances.

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ARE 'price,' 'opposition,' and 'kill the nerve' becoming to a doctor of dental surgery, a teacher of the people? Are these words an expression of that exalted view of dentistry which we should entertain? Do those words express or even suggest the nobility or the dignity of a worthy dentist's ambition? Do they suggest that a dentist hopes and labors for rewards other than mere dollars and cents? Are they marks of culture by which the social interests of the dentist are advanced? Are they even suggestive of accomplishments worthy of a respectable fee? Our words should express these things.—*H. C. Gowan*, in *DOMINION DENTAL JOURNAL*.

## Proceedings of Dental Societies

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### GRADUATES IN DENTISTRY.

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At a special convocation of Toronto University, held in the Guild Hall, Toronto, April 30th, 1903, the following members of the senior class of the Royal College of Dental Surgeons received the degree of doctor of dental surgery: Ernest Franklin Arnold, Fred Nichol Badgley, Ernest Symons Baker, Wm. Hamilton, Walton Ball, Geo. William Bald, Joseph Arthur Bradley, Matthew Poole Corrigan, George Henry Coram, Hubert W. DeRenzy, Rollin Oswald Dickson, Walter Vermilyea Dixon, Leo Doran, Robert Lorne Dudley, George Wesley Everett, Howard Fowler, George Alexander Fraser, Matthew Henry Garvin, Alva Etherton Heacock, Frank Garfield Hendry, Herbert Irvine, James Bremner Johnston, Charles Henry Juvet, William Kennedy, James Wellington Kinnear, Frederick Temple Knight, George Edwin Long, Michael McCloskey McGahey, George Edward McGuire, Alex. McKenty, Henry Patrick McKenna, William John McMurray, John Paris MacLachlan, William Hicks Milsap, William David Nichol Moore, George Ferdinand Moore, George Albert Munroe, Edward Charles Pickard, Harris Popplewell, Walter Garnet Price, Henry Oscar Richardson, Hugh Edwin Wesley Richardson, Arthur Peter Rutherford, Herbert Maxwell Sanderson, James Arthur Slade, Charles Berkley Taylor, Thomas George Thompson, Charles Finlay Walt, Fred Lyell Williamson, John Ralph Will, William Graham Wood, Thomas Harry Wylie, J. N. Shearer.

In addition to the above the following gentlemen received licenses to practise dentistry in Ontario: J. N. Shearer, Oscar Garnet Hassard, G. P. Taylor.

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### SPECIAL CONVOCATION AT TRINITY UNIVERSITY.

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At five o'clock on Wednesday evening, April 29th, Dr. G. E. Hanna, Kemptville, Ont., former president of the Royal College of Dental Surgeons of Ontario, had conferred upon him the degree of Doctor of Dental Surgery. The degree was conferred in the provost's room, by Rev. Prof. Clark, in the presence of a number of the friends of the university, and of Dr. Hanna. The Board of the Royal College, and the Dental Board of Trinity



were present to witness the ceremony. The provost's room, which has seen so many pleasant events, was prepared to receive the guests. The Rev. Prof. Clark, acting chancellor, conferred the degree, and Rev. Dr. Jones presented the candidate. At the close of the ceremony the chancellor called upon Dr. Caesar to make a few remarks, who congratulated Dr. Hanna for the high stand he had taken on his examination, and pointed out what such a stand meant for a man who has been out of college for years, and had a busy practice to care for and also had the profession's interests to look after in his capacity as president of the Board of Directors of the Royal College of Dental Surgeons.

Dr. W. E. Willmott expressed himself as pleased to have the opportunity of saying a few congratulatory words of Dr. Hanna, and the satisfaction it gave the staff of the college to know that the degree of D.D.S. had been conferred upon him.

Dr. J. R. Reade, M.A., secretary of the Board of Dental Studies, congratulated Dr. Hanna, and expressed approval of his many acts of wise legislation for the benefit of the profession, and expressed the hope that the profession would go on raising its standard, and that some day it would not look to any other profession or to any university for guidance, but would be fully self-reliant.

Dr. A. E. Webster expressed gratification at being present to see Dr. Hanna receive his degree, and pointed out the satisfaction it would give Dr. Hanna's constituents in District No. 1 to know that their representative was, as he always has been, the first in everything that tends to the betterment of himself and his profession.

Dr. Hanna, in a few well-chosen words and neatly-expressed ideas, thanked the Board of Dental Studies of the university and the university authorities for this special convocation. He felt this as one of the most satisfactory occurrences of his life. To be successful in an examination at a time in life when most people have given up such thoughts, was no small compensation for the effort.

The Provost, Dr. Street Macklem, complimented Dr. Hanna on his ability to so neatly express his thoughts. He also said that it was an honor to the university to number Dr. Hanna among its graduates.

Coffee and cake were served to the guests to give an opportunity for a social chat, and an exchange of greetings. Trinity has the happy faculty of giving its guests a feeling of sociability that no other institution can.

## TREASURER'S REPORT OF THE CANADIAN DENTAL ASSOCIATION.

### *Receipts.*

Sept. 19.	Enregistration, Banquet Tickets and Extra Badges.....	\$905 00	
	C. H. Hubbard .....	35 00	
	Temple & Pattison .....	35 00	
	Phillips' Milk of Magnesia.....	25 00	
	Plan .....	5 00	
	Watts' Gold .....	5 00	
	Lea & Smith.....	15 00	
	H. D. Justi.....	15 00	
	Klure & Co.....	10 00	
	Oakland Chemical Co.....	15 00	
	Ritter Dental Co.....	20 00	
	Ammonal Co.....	10 00	
	Dentists' Supply Co .....	25 00	
	Franco-American Co .....	10 00	
	Kriss & Owen .....	10 00	
	S. S. White .....	27 50	
	Outstanding Debts (Dr. Bourdon, \$20.00; Dr. Lionais, \$4.50)	24 50	
			\$1192 00

### *Disbursements.*

Sept. 17.	Joseph Fortier & Brosseau .....	\$ 1 75	
	17. Shooting the Rapids.....	69 75	
	17. Registration Book.....	2 40	
	17. Cab hire .....	26 50	
	18. Dr. Price, R.R .....	33 50	
	18. Dr. Price, Hotel .....	8 75	
	19. Dr. Ottolengui .....	35 00	
	19. Dr. Johnson, Expenses .....	20 00	
	19. Janitor .....	15 00	
	19. Rent of Hall, Smoking Concert ..	18 25	
	22. J. H. Kenehan .....	51 00	
Oct. 3.	D. H. Welsh, Luncheon .....	85 00	
	7. Geo. Graham, Refreshment, Smoking Concert .....	29 60	
	7. Windsor Hotel, Banquet .....	518 23	
	7. Talent, Smoking Concert.....	30 00	
	8. E. Dubeau .....	10 80	
	17. Normandin, Printing.....	23 65	
	17. Normandin, Printing.....	3 90	
	17. Desbarat, Printing.....	26 00	
	17. G. Rochon .....	50 00	
	17. Laird Paton & Son .....	13 15	
	17. T. G. Leders .....	15 00	
	15. E. Denis .....	2 50	
Nov. 6.	D. Bentley .....	16 50	
	8. Sydney Dagan, Talent, Dinner ..	10 00	
	10. M. Stencil Works .....	4 50	
	10. Postage .....	15 00	
	Unpaid Accounts .....	80 00	
			1215 73
	Deficit .....		<u>\$23 73</u>

Deficit paid by the Quebec Dental Association.

R. L. WATSON, *Treasurer.*





ROBERT L. WATSON, MONTREAL, QUE.  
First Treasurer Canadian Dental Association

## NATIONAL DENTAL ASSOCIATION.

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The above association meets in Asheville, N.C., Tuesday, July 28th. Preparations are being made for one of the best meetings in the history of the association. The section officers are preparing a programme, which from a scientific and practical standpoint, will be difficult to excel. The clinics will be made a special feature.

All dentists interested in the advancement of the profession should attend this meeting. All state and local societies should elect delegates who will be sure to attend the national meeting, they being entitled to one delegate for every six of their members.

The usual railway rates will be had on all roads in the United States and parts of Canada—one fare and a third, on the certificate plan.

L. G. NOEL, *President.*

A. H. PECK, *Rec. Secretary.*

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## THE INTER-STATE DENTAL FRATERNITY.

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The dental profession will be interested to learn that something entirely new in the way of a dental association has recently been organized in New York City, though its membership is to be national in character. It is to be known under the name of the Inter-State Dental Fraternity.

This association differs from all dental societies at present in existence in several vital respects. In the first place, whilst scientific work is not barred, it is to be made secondary to social and fraternal relations among the members. We give the constitution as recently adopted, and call attention to some of the unique features. The fraternity will hold its chief meeting annually at the same time and place with the National Dental Association, but will in no sense be a rival with that body. On the contrary, it will furnish the one thing that has been lacking at our National meetings, namely social features. The meeting of the fraternity will take the form of a banquet. In addition to this banquet meeting, the constitution permits the members in each state to hold local meetings, likewise around the festive board. This spirit of fraternal trustworthiness is accentuated by the fact that members are introduced by a single sponsor and without any reference to a membership committee, the sponsor thus becoming surety for his candidate. Perhaps the chief novelty in this constitution is



the effort to obviate any possibility of politics, there being no permanent presiding officer. At the first meeting, a large number of members from various states in the Union, besides New York and New Jersey were nominated, and the prospect is that there will be a perfect rush for membership by the best known men in dentistry, so that the first annual banquet will undoubtedly be a brilliant affair.

#### CONSTITUTION.

##### *Article 1—Name.*

Section 1. The name of this organization shall be the Inter-State Dental Fraternity.

##### *Article 2—Objects.*

Section 1. The objects of this organization shall be to foster fraternal and social relations between dentists, and to encourage and aid the progress of dental art and science.

Section 2. Individual preferment, by what is known as political methods, is expressly forbidden, in accentuation of which idea there shall be no permanent single head to the organization.

##### *Article 3—Membership.*

Section 1. There shall be two classes of members; active and honorary.

Section 2. Any reputable legal practitioner of dentistry, resident of the United States or Canada, shall be eligible for active membership, if proposed by a member of the fraternity in good standing.

Section 3. Election of members shall occur only at the annual meetings, except during the period prior to the first annual meeting, during which time they may occur at any meeting held in New York City.

Section 4. Election of members shall occur at the same meeting at which the candidates are proposed, the sponsor assuming full responsibility for his candidate's reputability and eligibility. Nine-tenths of the votes of those present and voting will be required to elect, and the election must be by ballot, if a ballot be demanded by any one member; otherwise it may be by acclamation.

Section 5. Honorary membership in the fraternity may be bestowed upon any dentist, physician, surgeon, chemist or other scientist who may have contributed especially towards the advancement of the science and art of dentistry.

Section 6. Any member may nominate a candidate for honorary membership, stating his reasons for demanding the honor,

and addressing the same to the secretary of the fraternity. Upon receipt of such nomination the secretary shall prepare a form of ballot, and mail same to every member of the fraternity in good standing. Nine-tenths of these mail ballots received within thirty days will be required to elect to honorary membership.

*Article 4—Officers.*

Section 1. The officers of the fraternity shall include vice-presidents in accordance with Section 2 of this article, a treasurer and a secretary.

Section 2. There shall be a vice-president elected to represent each state in the United States and each province of Canada, in which there shall be five or more members of the fraternity, and these vice-presidents, jointly with the secretary and treasurer, shall constitute the Board of Governors; singly, each vice-president shall be the executive officer of his state or province.

Section 3. At the annual meeting, and at all local meetings, the presiding officer shall be known as the chairman, and he shall be chosen by acclamation, or if demanded by ballot at the time and place of the meeting, his tenure of office expiring with the meeting. In cases where the meeting takes the form of a banquet, the chairman will be the toast-master and master of ceremonies.

*Article 5—Duties of Officers.*

Section 1. The control of the fraternity shall be vested in the Board of Governors, which shall comprise the full list of vice-presidents. The board should meet just prior to the annual meeting to arrange and provide for the proper conduct of the annual meeting and the financial and executive management of the same. It shall appoint a committee of three to act as auditors for the ensuing year, and also discuss any questions of business or policy that may arise. But no material alteration in the plans, policies or scope of the fraternity shall have force until passed by vote at the annual meeting by the general body. Each vice-president shall act in a similar executive capacity, organizing, arranging and financing the local meetings within his own territory, the same to be conducted without draft on the main treasury. The Board of Governors shall fill vacancies in the offices occurring by death or retirement during the year, the poll being conducted by mail.

Section 2. The secretary shall conduct the correspondence of the fraternity, edit matter intended for publication, send out notices of the annual meetings and of the Board of Governors, and keep a record of the annual meetings and of such local meetings as may be transmitted to him in writing by the vice-presidents.



Section 3. The treasurer shall be the custodian of the funds and property of the fraternity, and shall pay all bills when duly audited.

Section 4. The Auditing Committee shall examine and audit all bills, and if found correct authorize payment.

#### *Article 6—Election of Officers.*

Section 1. Election of officers shall occur at the annual meetings. An informal ballot shall be taken, and should no one receive a majority of the votes cast, those three receiving the highest number of votes shall be declared formally nominated, and a second ballot taken. Should there be no election on this ballot, the lowest shall be dropped and the other two only be considered in subsequent ballots.

Section 2. Under proof, satisfactory to the members present at the annual meeting, that any member had solicited votes for himself, or had connived at such solicitation in his behalf by others, such member shall be declared ineligible for election to any office during that meeting; if such proof be received after election, but prior to the adjournment of the meeting, said election shall be declared void and a new poll ordered.

#### *Article 7—Meetings.*

Section 1. The annual meeting shall occur at the time and place of the meeting of the National Dental Association, the exact day to be set by the Board of Governors. When possible, said meeting shall take the form of a banquet, the Board of Governors to decide whether the entertainment shall be in the order of a professional discussion, or merely after-dinner speeches, or both.

Section 2. Local meetings may be held monthly, or at the option of the membership in each state, and will be similar in character with the annual meeting, except that the expenses of each local meeting shall be shared by those present without draft on the fraternity treasury. Two or more states may unite in their local meetings, in which case the vice-presidents of such states will jointly act as the executive body controlling such joint meetings.

Section 3. All members of the fraternity shall have the right to attend any meeting, local or annual, with special invitation, but no one not a member may attend unless as a special guest of the occasion and invited by the vice-president, or by vote at a previous meeting.

#### *Article 8—Dues.*

Section 1. The dues shall be \$3 annually, payable in advance at each annual meeting.—*Editorial Items of Interest.*

### ELGIN DENTAL SOCIETY.

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This is to certify that J. J. Teetzel, L.D.S., having filled the various offices, was this day elected Honorary President of the Elgin Dental Society. He has practised dentistry in St. Thomas for a number of years and earned the reputation of being a most skilful operator and his pleasant manner made him many warm friends, particularly among the profession, who regret his departure and wish him success.

Signed on behalf of the Society,

CHAS. FITZSIMMONS, *President.*

FRANK E. BENNETT, *Secretary.*

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### Obituary

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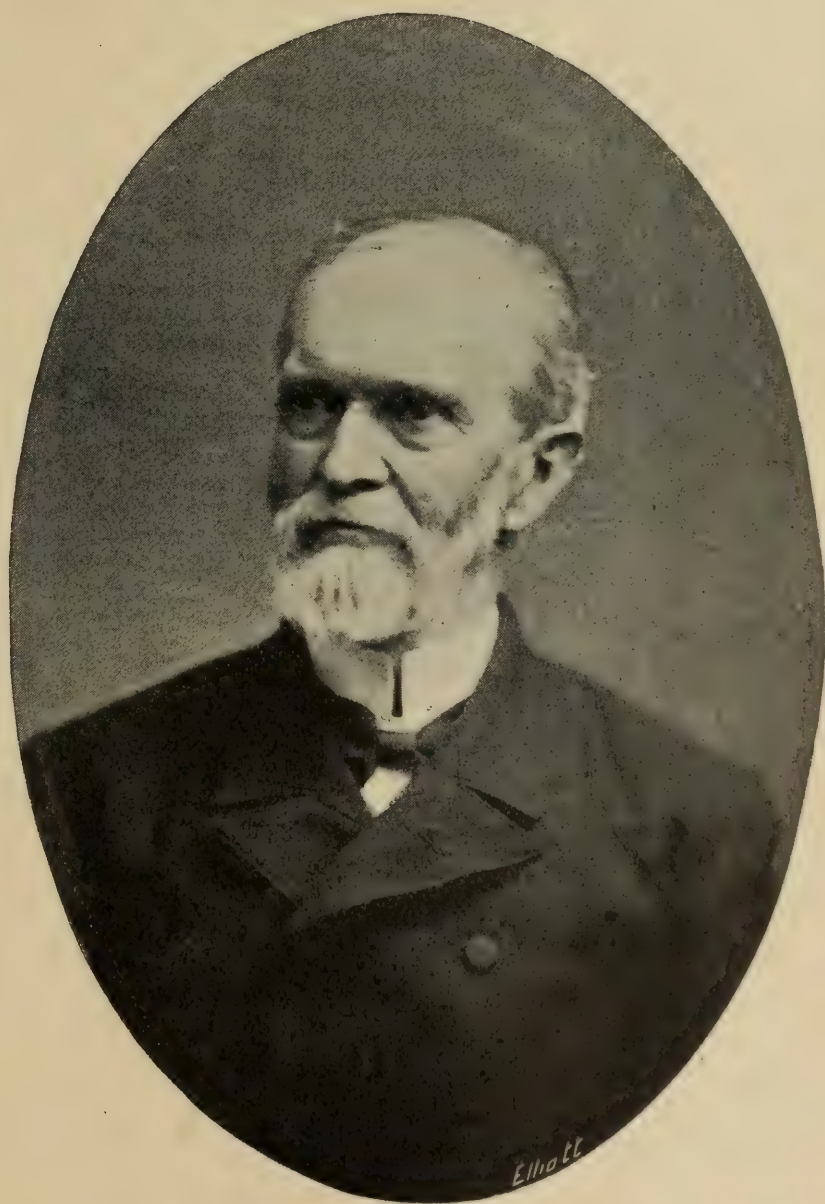
#### THE LATE STEWART BAILEY PALMER, M.D.S.

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A noble man, who, in practising our profession, bestowed honor on it, has passed away from our midst. Stewart Bailey Palmer, M.D.S., died at his home, in Syracuse, New York, on March 30th, 1903, aged 80 years, 6 months and 30 days. He was one of the pioneers of dentistry in the section of the country where he lived, and where he had had a long professional life, marked by the constant endeavor to keep his work up to the highest standard possible of professional excellence. That he succeeded in this is evinced by the high esteem in which he was held by all those on whom he displayed his manipulative skill.

Dr. Palmer was one of those men whom circumstances and environment cannot suppress. Born and brought up on a farm, far away from any village, he received but scanty training from the country school of the district where he resided, as his duties at home prevented him from attending the school regularly; but the limited education acquired there did not satisfy his thirst for knowledge, for he was a born investigator, and when quite a boy, the copy of "Comstock's Philosophy," which was placed in his hands at school, fired his ambition to know all about the various subjects of which it treated, and henceforth every moment he could spare from his regular duties was devoted to study and the acquisition of knowledge. In this way, he qualified for a course at the Cortland Academy, a high-grade school, which he entered, **and took one term of instruction, which was all he could afford at that time.** He finished this course in 1846, being then 24 years of **age**; but he was still unsatisfied, and he longed to be able to study





THE LATE STEWART BAILEY PALMER, M.D.S., SYRACUSE, N.Y.

and experiment along the lines of knowledge he had acquired there. To do this he must have tools and materials, but he had no means with which to get them. Shortly after he left school he was offered the position of teacher of the district school at Tully for the next year, 1847. This he gladly accepted. Here was an opportunity to get tools and whatever he wanted to pursue the studies that would give him the knowledge he longed for. With the means thus acquired, and amid many difficulties, he went to work, and succeeded in constructing working models of most of the implements and machines described and pictured in "Comstock's Philosophy," which was the leading text-book used in the schools at that time. Among those he constructed were a working model of a steam engine, an electric machine, a galvanic battery, etc. Here he was storing up useful, practical knowledge, and gaining manipulatory skill in departments of science, which were soon to be put to a practical test that was to determine the destiny of his life. His teeth were of poor quality, and many of them were destroyed by disease early in life.

During the year 1847, while he was teaching school, he had nine of them extracted, but he could not then afford to pay for an artificial set of teeth. At that time the plates on which artificial teeth were mounted were made either of gold or silver. Although up to this time he had never been inside of a dental laboratory, or examined closely an artificial denture, the loss of his teeth made him very uncomfortable, and he had no money to have an artificial set made. As he became skilled in the use of tools, and the discomfort of his mouth would annoy him, he often wondered if he could not make something that would relieve his discomfort. While he was in this uncomfortable condition, he happened to go into a drug store in Syracuse, and saw lying in a case on the counter a book with a set of artificial teeth delineated on the cover. He asked the druggist to let him see it, which he did, and upon examining it, he found it was a treatise on dentistry, with illustrations, describing the mode of constructing artificial dentures. He asked if the book was for sale, and was told that it was, and the price was five dollars. He did not have that much money with him, but he went to a friend of his father's in that town and borrowed three dollars from him, and went to the drug store and bought that book. He studied the contents until he thought he had acquired the knowledge he wanted, and determined to try and make a set for his mouth. He hammered out a plate from a silver dollar on an anvil in a blacksmith's shop; and, thus equipped, commenced to make a set of artificial teeth to supply the deficiencies in his own mouth. He succeeded in doing this, and so well that he was solicited to make several artificial dentures for other people. In all the cases of this kind that he undertook, his success was so complete that he determined to adopt dentistry as the occupation of his life. And thus he embarked in a calling in which he was destined to become celebrated.



Having decided upon this course, he devoted all of his indomitable energy to acquire a thorough knowledge of all the best methods as practised by the eminent men of his chosen calling in those days. To gain this information so much desired, he sought and obtained interviews with all the distinguished dentists he could reach, and it is needless to write that he succeeded in obtaining what he sought.

In the following year, 1848, he became associated in dental practice with Dr. John L. Allen, at Fabius, which association continued until 1850, when he started in practice by himself, in Lafayette. In the same year he married Miss Elizabeth Jane Savey, now deceased.

In 1851 he moved to Tully, and remained in practice there until 1866, when he removed to Syracuse, and entered into partnership with Dr. Amos Wescott, with whom he remained until 1868, when they separated, and he opened an office for himself, and from that time until he retired, about two months before his death, a period of thirty-five years, he continued to practise his profession in the City of Syracuse, making altogether a continuous practice of fifty-five years.

He had stated that from the moment he entered the dental profession his education had been a continuous advance in his profession throughout the whole of this long term. He said he was constantly stimulated by a desire for thorough knowledge on his part, and also stimulated and aided by dental literature and attendance upon dental meetings. Early in his practice he became a member of the American Dental Association, joining the latter in 1864, and always retaining his membership. In 1876 he was elected a member of the New York Odontological Society. He assisted in the organization of the Dental Society of the State of New York in 1863. In 1868 he received from the State Society (N.Y.) the degree of M.D.S. (Master of Dental Surgery). He was also an officer of the Fifth District Dental Society of the State of New York and a member of the Syracuse Dental Society. In 1872 he was elected a member of the Board of Censors of the Dental Society of the State of New York, and he continued a member of that board until 1895, when the Legislature of New York gave the power of granting licenses to practise dentistry to the regents of the university, and created a Board of Examiners in Dentistry to examine the candidates applying for such license. Dr. Palmer was appointed a member of that board when it was organized, and continued in that capacity until he died.

During the whole of his long professional career he continued to be a close student in the different departments of science, particularly in those that could in any way be utilized in the practice of his profession. In the early part of his professional life his investigations were principally carried on in the departments of mechanics and chemistry, but later his investigations were directed

to the subject of electricity, in which branch of science he became an enthusiastic student and investigator, which resulted in his promulgating the theory of "Vital Electricity," and its application to the cure of disease, particularly to those diseases that are treated by the dentist. In this direction he claimed to have made some important discoveries. Like all men who promulgate new ideas, he met with those who opposed his views. But Dr. Palmer was always a careful and patient investigator, and never put forth any theory until he was thoroughly convinced that it was a correct one, and then having reached his conclusions, and promulgated them, he did not seem to care to argue with those who opposed them, but contented himself with stating them clearly and then leaving the matter there with the remark, "Well, time will tell whether I am right or not, and I can afford to wait;" for, above all things, he disliked a wrangle or a quarrel. In fact, he was always a peacemaker, for nothing seemed to distress him so much as a dispute or a quarrel, and when one occurred where he was, either among his friends or during the meeting of a society he was attending, his whole energies and influence would be at once exerted in the cause of peace and good-will. Dr. Palmer was an extensive contributor to the literature of his profession and his contributions are a valuable part of its scientific accumulations, and they will become more and more valuable when they are better known.

Some years ago, Dr. Palmer, in connection with Dr. Flagg, of Philadelphia, for whom he always had a strong friendship, announced their doctrine of "The New Departure" in dental practice, which announcement caused the greatest sensation that has ever occurred in the dental profession. The new departure was received with violent opposition by a large majority of the best practitioners of that time, and it would not have been considered at all, if it had not been for the great respect that was entertained for the character and attainments of Dr. Palmer, its originator. But he was known to be a careful and reliable investigator, and a man whom everybody had faith in. And, therefore, it was considered; and investigation and time proved that the new doctrine was a true one, and Dr. Palmer lived to see it acknowledged as such. So that his motto, "Well, time will tell whether I am right or not," was verified, and time developed the correctness of his theory, and his justification in presenting it.

There was combined in his character a large amount of amiability and gentleness, with great firmness of character, and an indomitable will when it became necessary to use it; but in his ordinary intercourse with his fellow-men he was courteous, with a most happy, genial manner that made him a most charming and intelligent companion.

Dr. Palmer's father, Avery F. Palmer, was born in Stonington, Conn., where their ancestor, Walter Palmer, from Eng-



land first settled in 1639. His great-grandfather, the Rev. Wait Palmer, was pastor of the First Baptist Church of North Stonington. Dr. S. B. Palmer was associated with the First Presbyterian Church of Syracuse.

Dr. Palmer was a large-hearted man, with a nature overflowing with kindness, good-will and affection, and to his intimates and friends, his personality will ever be a most pleasant memory, for he was one of the truest of men where he gave his friendship or love.

As regards his domestic relations, one who knew him and his family intimately, has said of his household, that it was the most harmonious and the happiest one they had ever known.

This could hardly have been otherwise, when it is known what a fortunate man he was in obtaining the kind of wife that he did, for in her he had a most congenial and charming companion for the first forty years of his professional life, and it was a fearful blow to him when he lost her. She was a woman blessed with a most cheerful and affectionate disposition, and like her brother, the Hon. John Savery, of Cato, N.Y., gifted with large mental capacity. She was devoted to her husband, of whom she was very proud, and had entire faith in his ability and the feasibility of his projects. She was always ready to help him in any way that would contribute to the success of his undertakings. And this was done with a cheerful willingness, and ready intelligence that made her a most efficient co-worker, and she was never so happy as when she was helping him in this way. After the death of his wife, his sister, Mrs. S. C. Brooks, took charge of his household, and he had her affectionate and devoted care and companionship to the end of his life.

His official duties as a dental examiner for registration to practise dentistry, brought him in contact with many young men just entering the dental profession. In these, and all other young practitioners he was always deeply interested, and to many of them his kindly advice and assistance was always encouraging, and sometimes he was able to direct their career to a successful result, notably in the cases of Dr. John S. Marshall, of Chicago, for it was upon his recommendation that Dr. Alport engaged him as his assistant. Dr. Marshall eventually became Dr. Alport's successor, and thus was enabled to attain an eminent position and a reputation that is world renowned.

Another instance is Dr. G. Lenox Curtis, of New York, for it was by Dr. Palmer's advice that he qualified himself for the career he is now pursuing as an oral surgeon.

Such evidences of Dr. Palmer's "helping hand" could be multiplied *ad infinitum*, and will make the memory of him dear in many a grateful heart.

His intercourse with his professional brethren was of that character that always commands respect, and those of them who

knew him well will remember the acquaintance with him as a bright green spot in their lives. To his fellow-townsmen, his death is an irreparable loss, for he had been a member of their community for over thirty-five years, and was known to all the principal people of the town, who all respected and honored him as one of their most distinguished citizens. His death is felt to be a great loss by a large number of his fellow-citizens, and the large attendance at his funeral has shown their appreciation of his worth and their desire to do honor to his memory.

On the day of his funeral his body lay in state at the First Presbyterian Church, where the services were held, and hundreds of his fellow-citizens assembled there to take a last look at his kindly, familiar face. The Syracuse Dental Society attended in a body, and there were also present over a hundred dentists from different parts of the country. The organizations represented at the funeral services were the National Dental Association, the New York State Dental Society, the Fourth, Fifth and Seventh District Dental Societies of New York, the Institute of Stomatology of the City of New York, and the Syracuse Dental Society.

The funeral sermon was preached by the Rev. Dr. George B. Spalding, who in a discourse full of emotional eloquence, declared that the death of Dr. Palmer, while it is a serious loss to the dental profession, was a great calamity to the large circle of devoted friends, who were most affectionately attached to him by the sympathetic loveliness of his character.

Dr. Spalding said he had lost a dear friend. "I knew and believed in him as if he had been my father. He was a man without guile, whom you believed in implicitly the moment you looked in his honest, trust-inspiring eyes."

The honorary pall-bearers were Dr. O. J. Gross, of Schenectady; Dr. A. M. Wright, of Troy; Dr. Frank French, of Rochester, who were Dr. Palmer's associates on the Board of State Dental Examiners, and Dr. R. H. Hoffheinz, of Rochester, the president of the New York State Dental Society. The active bearers were Dr. J. H. Dower, Dr. J. E. Cummings, Dr. G. H. Butler, Dr. A. F. Smith, and Dr. C. H. Barnes, all of Syracuse, and Dr. A. D. Wells, of Skaneateles.

The body was taken to Tully for burial, and all the dentists present at the funeral escorted the body from the church to the railroad station.

The case of Dr. Palmer is the only instance in the history of the dental profession where the death of one of its members has created the demonstration of sympathy and sorrow in so large a proportion of the community as large as that of Syracuse; and it illustrates the magnetic character of the man, and the influence his splendid qualities had upon the community in which he lived. Hundreds of letters of sympathy and condolence are being re-



ceived by his friends, many of them paying the highest tribute to his worth and ability. One from Dr. Farrar gives expression to this sentiment: "The great dentist, with his smiling face—his very thoughts could be read by looking in his eyes; he will long live among the thinkers of the profession."

The Rev. George B. Spalding D.D., his pastor, writes: "His death leaves a great break in the army of dentists. I wish we had more like him."

Dr. Truman says of him: "He has been to me the embodiment of all that was to be found in dentistry. He has ever been faithful to it, and he has been faithful to the light that made brilliant his inner being, and from there reflected to an unbelieving professional world. He was free from dishonesty and hypocrisy. He has a clear record. His death ends a noble life on earth, but does not end the great cycle of an infinite mind."

Thus those who knew him speak of him, all eulogistic of his beautiful character and the splendid gifts he employed so wisely for the benefit of humanity. *Requiescat in pace.*

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## Selections

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### FUSING POINT OF PORCELAIN.

BY W. A. CAPON, D.D.S., PHILADELPHIA.

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A few years ago this subject would have been passed with small interest because it mattered little to the general dentist what heat was required to fuse porcelain so that it came from the soldering investment in proper form and shade.

Colleges teach the fusing-point of various metals, because it is of practical value to every dentist at some part of his career, and now that a porcelain furnace is almost necessary to an up-to-date equipment, it is quite as necessary to know the materials used in that connection.

The dentist can buy a variety of porcelain bodies just as he can buy porcelain teeth, with the difference that his knowledge of the former is limited as compared with the latter, which has shape and shade, and is ready for the use he has been taught to give it, and rely upon it according to his confidence in the manufacturer.

He knows that a certain degree of mystery surrounds the making of teeth and the mixing of the various ingredients, while the formulas of the different manufacturers are a trade secret known only to a select few. From a trade standpoint this is correct and not to be criticized, but from the professional view it is

only right that every dentist should know as much as possible about the manufacture of teeth, and I have no doubt that as the use of porcelain becomes more general, the interest in everything pertaining to it will become greater, until manufacturer and consumer will understand that each can render the other mutual assistance.

The following tests were prompted primarily by a desire to supply the dentist using the Hammond Electric Furnace with accurate data as to the relative fusing points of porcelain materials likely to be used in the various dental processes for inlay, crown, bridge, and continuous gum-work. With this end in view was purchased a pyrometer manufactured by Kaiser & Schmidt, of Berlin. This selection was made on account of its absolute work, its excellent mechanical construction and the fact that its accuracy is guaranteed by a certificate from the German Government. The Western Electric Instrument Company, of this country, also gives a certificate confirming the accuracy of the galvanometer, which is the registering part of the apparatus.

The principle of the instrument is that of a thermopile, which by the action of heat upon certain dissimilar metals creates a current of electricity capable of being measured. As many metals of dissimilarity have an electric thermal action, it follows that to register the higher heats metals of the highest degree of resistance must be used, therefore, in the Kaiser & Schmidt pyrometer, platinum, which fuses at 3227, and rhodium, with a fusing point of 3500, are used in the form of parallel wires, united at one end in a ball, the whole known as a "couple." The free ends are electrically connected with the galvanometer. The method of operating the instrument is to enter the ball end of the "couple" into the furnace, just above, but not quite touching the material to be tested. The heat acts on the couple at once, and the slight current of electricity generated and carried through the connective wires is registered on the galvanometer. The greater the heat the higher the reading.

The readings on the galvanometer are taken from two scales, one registering the current generated in millivolts representing so many degrees of heat, centigrade. To reduce the centigrade degree of heat to Fahrenheit, it is necessary to multiply by 9, divide by 5 and add 32.

By repeated experiment I learn that the fusion in all cases was accomplished at a relatively low heat by giving a long exposure. I therefore, for the purposes of practical work and to secure a uniform standard of comparison, decided to raise the temperature on each material to such a degree as to admit the use of a uniform time limit of two minutes, and adopt as a standard a temperature which, continued during the stipulated time, should fuse the material under test.



The method of preparing the test pieces was to mix the powder with water to a stiff, creamy consistency; the mass was then spread to a thickness of about five thirty-seconds of an inch and the excess of moisture absorbed with blotting paper. The edges were then trimmed so that the test pieces were of uniform size of three-eighths of an inch square, by five thirty-seconds of an inch thick. Each test piece in succession was then allowed to remain on the furnace platform until dried out, after which it was placed in the furnace under full temperature.

In opening the furnace door to introduce the test the heat naturally drops a number of degrees, therefore the time record was not taken until the door was closed and the temperature again raised to the full heat the furnace was gauged to develop for the special test in hand.

All the tests were made in a Hammond electric dental furnace under absolute conditions. All the materials were in powdered form purchased in the open market, or, in the case of a tooth, the bodies were secured from the factories of the respective makers.

Pyrometer tests, November 24, 1902, to determine the fusion point of porcelain inlay materials, also tooth bodies herein enumerated, are as follows:

	Temperature.
Downie's .....	1544
Jenkins' .....	1544
Ash's low fusing .....	1544
Ash's high fusing .....	1904
Moffit's porcelain .....	2047
Brewster's enamel .....	2084
Consolidated high fusing .....	2192
Brewster's foundation body .....	2210
Whiteley's porcelain .....	2210
Close's foundation body .....	2300
White's porcelain (inlay) .....	2300
Parker's body .....	2586
Ash & Sons' tooth body .....	2264
Sibley's tooth body .....	2408
Dental Protective tooth body .....	2440
Justi's tooth body .....	2440
S. S. White's tooth body .....	2516
Johnson & Lund's tooth body .....	2586
Luken's tooth body .....	2606
Century tooth body .....	2624
Consolidated Dental Mfg. Co.'s tooth body .....	2624

For three reasons these temperatures can be accepted as being absolutely correct, for every detail was given the most minute at-

tention. First, the voltage was controlled to 110 without deviation. Secondly, these figures represent several trials of the same material, and, thirdly, the watch was assisted by the eye, which is the only sure way of knowing when porcelain is properly fused.

The placing of plaster-of-Paris in the furnace should be avoided, as it fluxes the clay and exposes the wires, very much as water would wash dry material, leaving a little glaze over the wires, which deteriorate and form a weak spot. This may be due to a chemical combination with the silicate in the fire-clay which attacks the platinum wire. Powdered silex under very high heat will also combine with the clay and expose the wire, readily allowing a short circuit by metal contact.

No doubt many will be surprised at the low figure of many porcelains generally thought to have a much higher fusing point. As an instance, I will use Close's continuous gum-body, which is known probably better than any other. It has been quoted at 2600, and even as high as 2800, and the lower fusing materials at 1900. However, I think, with many others, that porcelain fusing at 2200 or 2300 may have all the qualities necessary for the general purposes required in present-day operations.—*Dental Brief*.

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## THE MAKING OF A WILD MAN.

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BY E. S. VAN DUYN, M.D., SYRACUSE, N.Y.

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In August, 1901, a dentist conceived the idea of creating a wild man by fastening horns and tusks to the head of an ordinary negro, dressing him in a South African costume and exhibiting him as a wild man and a monstrosity. He felt sure there would be a great deal of money in the enterprise, and succeeded in finding a negro, a man a little below the average intelligence, who consented to play the part and undergo the proposed transformation for the share of the profits. The canine teeth were cut off at their base and the roots gold-crowned, a screw-hole in the centre by means of which two alligator teeth were held in place and protruded some distance between the lips. For attaching the horns two knobs were first screwed into drill-holes made in the vaults of the skull, but nature soon threw these off, and they were replaced by a plate the shape of the letter H, three inches high, two and one-eighth inches broad, the arms being half an inch in width, and this was inserted beneath the scalp



superficial to the aponeurosis of the occipito-frontalis. At the ends of the cross-piece were two knobs which protruded through the scalp. The wound healed nicely, two goat's horns were attached to the knobs, well-hidden in the thick, matted hair, and the wild man was completed. From Christmas time until mid-summer this man was shown about the country. Confined in a pen strewn with straw, he was dressed in an outlandish costume, forced to chew raw meat from a bone, and continually prodded by the attendants, paced restlessly from side to side of his wooden enclosure.

At first the horns set quite firmly on the head, and the curious were allowed to examine them, but soon this constant irritation caused much soreness and tenderness, and further handling was prohibited. In August, 1902, the scalp became ulcerated at the base of the right horn, and caused him much trouble. He said he could never become accustomed to the presence of the horns, and was constantly hitting them against things. Finally he procured some carbolic acid which was given him at a drug store without directions or question, and applied it in full strength to the irritated spot. This, by its corrosive action, enlarged the area of ulceration, and increased the soreness to such an extent that he was an annoyance to his managers by his complaining, who found they could no longer exhibit him and conceal the deception. So, taking the horns and tusks from him, they told him they had no further use for him, and left him penniless to look out for himself.

On entrance to the hospital, he was silent, sullen, and dull, saying only that he wanted this plate removed. Before he left, good care and decent treatment had made a marked change in his whole manner and action. The plate was easily removed by making an incision over the cross-bar and the posterior limbs of the uprights, the plate then being elevated and drawn out. The right arm had cut by its outer edge through the aponeurosis to the bone, and the whole plate was imbedded in granulation tissue. The process was evidently extending, and in time the plate would have undoubtedly come away, on account of the sloughing. The operation wound healed quickly and without accident.

So sure was the perpetrator of this scheme of its success that he considered the report of this operation given by the newspapers, on account of the oddity of the case, a ruse on the part of the exhibitors to deceive him and so defraud him of his share in the receipts, and he got a friend to write here, addressing the letter to the interne of the charity hospital of this city, to ascertain if the operation was really performed, and the particulars connected with it.—*International Journal of Surgery*.

# Directory of Official and Voluntary Dental Associations and Societies of Canada

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President—E. A. Randall, D.D.S., Truro, N.S.  
Secretary—F. W. Ryan, D.D.S., Halifax, N.S.

### PRINCE EDWARD ISLAND.

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Montreal, Que.

The above is a correct list of the dental organizations of Canada, with Presidents and Secretaries, so far as they are known to the Journal. It is the intention to keep a list of the officers of all Canadian societies in the Journal, so where there are omissions or errors please notify the Editor, who will make the correction, and as far as possible keep a corrected list, which will be of great value to the organizations.



# Dominion Dental Journal

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VOL. XV.

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No. 5.

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## ABOUT TESTIMONIALS AND MUMMIES.

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On one or two previous occasions we have called attention to the giving of testimonials or letters of recommendation for all kinds of methods, drugs, and appliances used in dentistry. We pointed out that many of these means of advertising are not legitimately obtained. It is true that some dentists will give a recommendation for almost anything, but their testimonials are not of much value. To get a recommendation from a good reliable practitioner is difficult, but of value when once obtained.

The latest thing in recommendations comes in a neatly-gotten-up pamphlet, with a full-page frontispiece of its author. This catalogue says that it is educational in character. We judge that its chief educational value consists in pointing out the virtues of Dr. Kellogg's paste. This paste, which is mainly iodoform, and two or three of the essential oils, is supposed to devitalize and permanently preserve the pulp of a tooth when applied to an exposure and immediately covered with amalgam. The supposition is that the mercury of the amalgam coming in contact with the

iodoform forms iodide of mercury, which is known to be a powerful disinfectant. The question is, does mercury form iodide of mercury in the presence of iodoform under such conditions? Doubtful. Then suppose it does, why pay a dollar for a little bottle of Kellogg's paste, when iodoform, the essential in the paste, is in every office, and can be mixed with any anodine the operator thinks best at the time?

At a meeting of the Toronto Dental Society last autumn, the subject of pulp devitalization and mummification was discussed at some length, some two or three of the members stating that they had used Dr. Kellogg's paste in quite a few cases, while others had very indifferent results in a few cases. One gentleman stated that he knew a dentist who had used it in a few cases some years ago, and that these acted so badly that he used it no more. Some very strong statements were made against the mummification practice.

The question of mummifying pulps has been long discussed, and without adding much that is new. It is contrary to natural law that dead organic matter should remain under proper conditions for its destruction without its being destroyed and restored to its original elements. A dead pulp in a tooth in the mouth is undoubtedly in the proper condition for its destruction by micro-organic life, and to prevent this for any length of time is very difficult, or almost impossible. Only those practitioners resort to mummification who are unable to remove a pulp or are unwilling to spend the time. They know that the tooth can be extracted and a bridge or denture made, either of which will add to their income, with little expense of their time, as the laboratory boy can do most of the work.

In the pamphlet under discussion appears the following: "Every man whose name appears in this pamphlet knows that the claims I make for this preparation are exactly true, and they know it from actual experience, of from one to four years, and in hundreds of cases. Please communicate with one or all of them."

The names from Ontario are: J. J. Jerome, R. E. Sparks, W. A. Leggo, E. Cunningham, Thomas Neelands, W. G. Switzer, J. F. Adams, John W. Elliott, Harry A. Galloway, Robert J. Reade, C. H. Riggs, M. W. Sparrow, W. G. L. Spaulding, Frank Stowe. Taking Dr. Kellogg's advice, we have communicated with three or four of the gentlemen named, and they deny *in toto* the statements made by Dr. Kellogg. We presume that many of the



others named would do likewise. In the first place, these men deny giving Dr. Kellogg the privilege of using their names, and in the next place, they say they have not used the mixture at all, except as an experiment in a few cases. Somebody must be making a mistake in these statements, and the chances are ten to one that it is Dr. Kellogg. It is a very strange thing that some people will give recommendations for things that they know little or nothing about, and a still stranger thing that others will so often allow their names to appear under such circumstances without a protest. Some one should prosecute a few of these vendors of wares of questionable value for using their names without authority. Such things reduce dentists to the level of the cured by quack medicines. Few, if any, of the reputable dentists of Chicago, the home of Dr. Kellogg, know of either Dr. Kellogg or his paste.

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### HOW TIMES DO CHANGE!

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At the close of the examinations of the Royal College of Dental Surgeons the senior class gave a banquet at McConkey's. The idea of giving a banquet has grown during the last few years. It was done now and then for some time until now it is a settled practice. A graduating class that does not have a last communion in the form of a dinner would be looked upon as not up to the mark. When these banquets were first given they were on the order of that given by the Ontario Dental Society—rather cheap affairs—but nowadays, and particularly the one given by the class of 1903, they are very well gotten up. The best of everything is none too good. The best menu, the best caterer, the best decorations, the best music, the best wines, the best speakers and the best good fellowship are characteristics of the present graduates of the Royal College of Dental Surgeons. There are those who decry the high matriculation, but if it does nothing else it introduces men of better tastes into the profession. It is not long since in the history of the college, when the graduating class could not nearly all be collected for any purpose on the evening of the day that closed the examinations. So many of the class had "beer" tastes that they could only be entertained in "beer" company, while now the more refined tastes of wine and brotherhood are characteristics of the gradu-

ates. It is not without a struggle that those changes have come about. In the days before the banquet beer and acts of violence akin to the bushman's, were a fitting close to a college course. Then came the banquet, where to countenance wine would have been shocking; but there was, of course, an occasional bottle of beer smuggled in, and quite a few absent for "beer" reasons. To-day there may be wine *ad lib.*, and what's the result?—not one member of the class absent from the banquet; not three pints of wine consumed by some sixty guests; not one person even suspected of having taken more than enough for a tonic. How times do change! Surely this is an answer to the question of a high matriculation standard and to the calibre of the recent graduates—men who demand liberty and are capable of living up to its obligations.

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### Editorial Notes

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THE smoother the friend the harder the bump.—*The Moon.*

DR. HARRY HOARE is going west for a few months' holiday.

DR. K. C. CAMPBELL, of Carleton Place, goes to Western Canada to practise.

NEVER extract a tooth to correct an irregularity unless it is an undoubted necessity.

NON-COHESIVE gold is a saver of teeth, a saver of time and a sâver of dentists.—*Haskins.*

NO communications to the Journal will be published unless accompanied by the name of the author.

THE Dental Society of Western Canada will meet in Winnipeg during the early part of July, 1903.

DR. and MRS. W. E. WILLMOTT sail for Europe on June 26th, to spend a three months' holiday.

THE new dental law of the State of Illinois gives the board the power of disciplining the members of the profession for unprofessional conduct.



DR. BRACE, of Brockville, died 23rd of April. A fuller report will appear later.

THE Ohio Medical University, Columbus, Ohio, graduated sixty-two candidates in dentistry April 16th, 1903.

A LUCKY person nowadays is generally born with a gold tooth in place of the proverbial silver spoon.—*The Moon*.

THE Dental Society of Western Ontario meets in Chatham June 30th and July 1st, 1903. Dr. G. T. Kennedy, St. Thomas, secretary; A. W. Thornton, Chatham, president.

THE officers of the Board of the Royal College of Dental Surgeons are: President, H. R. Abbott, London; treasurer, J. Frank Adams, Toronto; registrar, A. M. Clark, Woodstock.

DR. THOMAS HENDERSON, specialist in the administration of nitrous oxide gas, and extraction of teeth, has his new office in the Henderson building, on the north-east corner of Queen and Yonge Streets, Toronto.

THE *Toronto Daily Star* again called the graduates of the Royal College of Dental Surgeons "tooth-pullers." Will some one who knows the editor of that paper point out to him the difference between a dentist and a tooth puller?

WHEN waste-pipe of fountain-spittoon or sink becomes clogged, and there is no plumber available, fill spittoon or sink half full of water; then by inverting an ordinary rubber plaster bowl over orifice of waste-pipe and exerting a quick, sharp pressure on bowl the obstruction is readily removed.—*Geo. G. Jordan, Toronto*.

WITH this issue we begin a series of articles which give the condition of dental education in the various counties of the world, including Ontario. The Journal may later on express some views on the subject of dental education, as it did a couple of years ago. There have been some modifications of the pupilage in Ontario in consequence. The time is about ripe for still others.

DR. J. J. TEETZEL, of St. Thomas, has been elected honorary president of the Elgin Dental Society, in recognition of his years of service to the profession in and about St. Thomas. It is Dr. Teetzel's intention to spend the summer in New York, and in the

autumn to enter the Edinburgh Dental Hospital with the intention of obtaining a license to practise his profession in London, England.

DR. EDGAR PAUL, Toronto, has moved into new offices in the Henderson building, on the north-east corner of Queen and Yonge Streets.

DR. STRATTON, Royal College of Dental Surgeons, 1902, and Dr. Bowles, Royal College of Dental Surgeons, 1899, recently passed the examination of the Dental Board of Manitoba.

THE following gentlemen, who were students of the Royal College of Dental Surgeons last year, have just graduated from Chicago College of Dental Surgery, Chicago: A. K. Reynolds, D. J. Bagshaw, C. B. Fraser, L. C. McMurray, P. B. Proudfoot, and F. Price.

THE "Dentists' Register," issued by the General Medical Council of Great Britain and Ireland for 1903, contains 4,617 names; 2,466 of these were in practice previous to the passing of the Dentists' Act, 1878; only 2,148 hold a registerable diploma. It is said that the register does not contain the names of all those who are in practice. Many assume the names of their predecessors, being cheaper, as a registration fee is necessary to begin practice.

At a recent burglary trial a piece of butter which had been presumably bitten by the burglar was put in as evidence. Mr. Alfred Sainsbury, dentist, spoke to taking a cast of the prisoner's mouth. The teeth in the front of the mouth were in a peculiar position, and some were missing. They never found two mouths alike. He had examined the butter and was perfectly satisfied that the marks were made by the same teeth as those on the cast. Finally the prisoner was sent to penal servitude for three years.—*Dental Record*.

THE *Medical Press* refers to a curious accident and its sequel as follows: "The ease with which a tooth can slip into the trachea during a series of extractions under an anesthetic must have struck every medical man who has administered the anesthetic in such cases. Fortunately, however, the accident is of extremely rare occurrence, as it is easy to understand that its results might be most unpleasant. A singular case has been recorded in a contemporary by Dr. Carnegie Dickson, of Edinburgh, where a swal-



lowed tooth eventually produced symptoms almost identical with those of phthisis. In December, 1901, the patient had twelve stumps removed under an anesthetic. The day after he felt slight uneasiness behind the sternum, accompanied by a cough. This passed off, and he had no further trouble till the following January, when he had a severe attack of "influenza," accompanied by cough and muco-purulent expectoration. The "influenza" continued until March, when he got somewhat better, save that the cough and expectoration continued, and he noticed a feeling of irritation behind the sternum. In July and August he went for a sea journey, during which time he improved, but some time after his return he again relapsed into the same condition, and, in January, 1903, he had a severe attack of hemoptysis. A few days later the hemoptysis returned, and, feeling a 'sort of obstruction in his chest,' he coughed up a mouthful of red blood and an upper molar tooth with a cavity in it and ragged edges. Dr. Dickson and his father, who had both seen the case, never doubted but the man was a victim of phthisis, of which he presented all the symptoms. Such a case could hardly be regarded as possible unless it had actually been observed. It conveys a strong lesson to dentists never to allow a tooth, or the fangs of a tooth, which has dropped from the forceps to remain for a moment in the mouth, but to remove it before doing anything else."

MR. SIDNEY VINES thus describes a case of gonorrheal gingivitis to the *British Medical Journal*: "On March 22nd, 1902, I saw a middle-aged working man, suffering from a gonorrhea contracted five days previously. He had been intermittently crippled by chronic rheumatism for many years. A recrudescence held him bedfast at that time. For this reason, and in that he was a married man and the father of a family, local treatment consisted only of an antiseptic wool and a weak lotion of mercury perchloride. Internal medication was on the usual lines. The disease ran an ordinary course, until on April 16th he complained of soreness of the mouth and of having to spit often. On inspection, the gums were red, swollen, spongy, and there was an over-abundant flow of saliva. The condition was suspicious of commencing mercurial stomatitis. He denied having drunk any of the lotion, so that it seemed not unreasonable to suppose that he had been poisoned by absorption, though such a degree of sus-

ceptibility was almost inconceivable. The lotion was stopped, and a mixture containing potassium chlorate given. By April 20th he presented an appalling spectacle: huge, incapable, with a big head of the bulldog sort, the lower jaw drooping, and saliva unceasingly trickling from the angles of the mouth. Every tooth loose and bathed in pus which oozed from every socket. He could not eat, and drank with difficulty, vomiting frequently. His temperature was 101 deg. Fahr. The atmosphere of the bedside was very offensive. The true nature of the condition was now evident. Visions of consecutive disease of the stomach and bowels obtruded themselves. A solution of silver nitrate (gr. 10 ad dr. 1) was applied locally twice daily and a mouth wash of potassium permanganate ordered. The dyspepsia was treated appropriately. On April 22nd it was ascertained that gonococci were present in a swab taken from the gums. By April 26th symptoms were abating. Tonics were exhibited and the patient ordered to paint his gums many times a day with equal parts of glycerine and the strong solution of perchloride of iron. Matters improved progressively and by May 10th the mouth appeared normal. When the patient learned the state of affairs he volunteered a satisfactory explanation: He was in the habit of religiously picking his teeth after meals with a wooden match whittled to a point. He was kind enough to add that though I had warned him of the danger of carrying infection to his eyes I had said nothing concerning his mouth. I have seen cases of conjunctival, rectal, and nasal gonorrhea, but never anything so revolting as this gonorrhea of the gums."—*Dental Record*.

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## Correspondence

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### A CORRECTION.

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To the Editor of DOMINION DENTAL JOURNAL:

DEAR SIR,—On page 235 of the April issue I am reported as saying: "I think I said a dentist should be able to diagnose these cases (it seems to be the general opinion that I said treat) and then he may turn them over to a competent surgeon to treat them."

This is somewhat misleading, as one would infer from this that I had said all cases of oral surgery should be turned over to the surgeon to treat. The above statement has reference to *malignant diseases only*.

Yours truly,

Petrolia, May 15th, 1903

J. E. WILKINSON.



# Dominion Dental Journal

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VOL. XV.

TORONTO, JUNE, 1903.

No. 6.

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## Original Communications

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### ADENITIS.

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BY HERBERT BRUCE, M.D., F.R.C.S. (ENG.), TORONTO.

Associate Professor Clinical Surgery, University of Toronto.

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Address delivered before the Royal Dental Society.

When your president asked me to address you, he first suggested the subject of anesthetics. As this was out of my line somewhat, I asked him to let me have something surgical. He then suggested adenitis.

I performed a slight dental operation myself this morning, and here is the fruit of it: a third molar, which was in such a position that it was impossible for it to erupt. The history of the case was that the young man, whose age would be from 26 to 30, has had a discharging abscess from his mouth for six years. The sinus opened behind the second molar tooth on the left side. I found some difficulty in getting a probe into the opening when I probed there some time ago. In doing so, however, I found bare bone on the side of the maxilla. It looked like necrosis, but the patient did not exhibit any further symptoms of necrosis other than this. He said something of having been hurt playing football at some time. I advised an operation, and at the time did not think of the trouble arising from an unerupted tooth, but I thought of the possibility of there being present an unerupted tooth. He had a lump on the side of his jaw which was of considerable size, and was situated about the angle of the jaw. At times it would swell up and become very troublesome, and then it would subside. This morning, after placing him under an anesthetic, I cut down on the outer side of the max-

illa, and I found a large cavity, so large that I could put my finger into it. It contained cheesy debris, which is common in tubercular affections. This was scooped out, and I came down upon something that felt very smooth and ivory like. I chiselled away some bone and after a little time I lifted up the molar. It was lying on its side, the top of the crown pointing backwards, and I think it was in a position that would prevent its eruption. He had no symptoms referable to an unerupted tooth like trismus. Now, gentlemen, my time is limited to half an hour to-night and I must get down to my subject, adenitis. Just a word about lymphatic glands. Those about the neck are of considerable importance from a surgical standpoint in the saving of other parts from infection. Their function is to collect and drain the lymph of deleterious substances. In connection with this function every opportunity is afforded for the occurrence of infection and inflammation in the lymph glands, and it is not at all infrequent that we have infection and inflammation in the glands of the neck and below the lower jaw. I must just mention the location of some of these glands: The suboccipital at the back and base of the head; those over the mastoid process; those over the parotid gland; the submaxillary—and it is these I suppose that most interest you. These glands receive the lymph from the oral cavity, from the gums and parts of the mouth, the fauces and the whole interior of the buccal cavity. Any irritation about the tooth and gums is apt to be followed by swelling of these glands.

Then we have the glands in part of the internal jugular vein, perhaps twenty or thirty. First, let us study acute adenitis. From what I have said of the function of lymph glands you will see that those of the submaxillary region of the neck are most liable to infection through the mouth. If we have any abrasion in the mouth, if we have a prick from any instrument that is infected with bacteria, these bacteria will be carried through the lymph streams and produce adenitis. Any pathogenic organism that is present in the mouth, if carried to the glands, is almost always sure to give rise to acute adenitis. The bacteria most ordinarily met with in the mouth are streptococci and staphylococci. An accumulation around the necks of the teeth of tartar, etc., with a lacerated condition of the gums, and the mouth flourishing with micro-organisms, we can easily see how the glands of the neck will become infected and give rise to adenitis. If those infected areas do not break down in the form of pus, they are likely to subside into a chronic swelling; so that we get acute adenitis passing into chronic adenitis. The glands when in an infected state are very sore to the touch, and can easily be felt under the skin, so that if we can feel these glands of the neck, and find them tender to the touch, the inference is that we have the beginning of an inflammatory attack in them. Later the patient will complain of a throbbing sensation in the affected regions, the skin be-



comes reddened and adheres to the glands, and we have the beginning of periadenitis. If pus is formed it will eventually burst through the skin. If the glands give a sensation of fluctuation, then it is wise not to have the case delayed further, and it should be opened antiseptically. So much for acute adenitis. I do not need to go into the treatment of adenitis in its various forms, for you would naturally refer such cases to a surgeon.

Next we come to chronic adenitis, which may be simple, tubercular or syphilitic. These are the three commonest forms of adenitis, and we have to deal with chronic adenitis more often than acute. The simple type often occurs in children and in young adults, and is commonly associated with one of these conditions, first, pediculosis, or as it is more usually known, vermin in the head; secondly, a chronic discharge from the ear, and thirdly, with eczema of the face. In the case of the first associated trouble there are many ways of getting rid of it. Spirits of camphor may be applied to the head, and the head wrapped in a towel over-night. The discharge from the ear and the eczema must receive special treatment. Then again, certain conditions about the mouth are productive of chronic adenitis; for example, carious teeth, and where the use of dental pastes and powders are not indulged in sufficiently. Then, again, the fauces and tonsils through which most commonly the submaxillary glands are enlarged, and this enlargement is due to an overgrowth of lymphoid tissue. This in itself is not serious, but it frequently becomes infected with micro-organisms, which give rise to supuration, and the formation of an abscess. For these reasons it is important that we should avoid and correct any condition which is producing chronic adenitis; so that the condition of the throat and gums should be looked into. If the tonsils are enlarged, they should be removed; if the teeth need treatment, they should receive it.

Now, let me speak of tubercular adenitis. All these glands of which I have been speaking are in a suitable condition for the tubercular bacillus if it should be brought to them. Tuberculosis, no matter where it is situated, is often spoken of as hereditary, but it is only so in a sense. It is only the fertile soil that is hereditary, and not the disease. Where we have children of tubercular parents, then we have a soil that is suitable. We do not have a child born with tuberculosis, but the disease is caught or obtained after the person begins to get about in this world; so you will see that this is an infectious disease which can be prevented by care, and the development throughout the country of sanitariums will prevent a great number of people from contracting this terrible disease. The patient who has tuberculosis is taken away from those in a healthy condition and the danger of infection is therefore removed. It is only right that tuberculosis should be treated in this manner, like smallpox or any other dangerous contagious disease.

In tubercular adenitis the tubercle bacillus is conveyed to the gland by the blood stream. In some special cases throughout the region of the neck the infection occurs through the throat, if there be any abrasion in the mouth, and sometimes even without abrasion these bacilli will find their way through the lymph streams to the lymph glands, and as soon as they arrive there they will begin to increase and multiply, and produce tuberculosis. In the tubercular process, we have the formation of giant cells, and around these giant cells a zone of epithelioid cells, and around these again, we have a zone of lymphoid cells. These form the typical tubercles which exist throughout the lymph gland. Later on we get the formation of a cheesy material, or caseation, and then, if there be secondary infection from other organisms, *e.g.*, from the mouth, we get suppuration. This disease extends to the fibrous covering of the glands, giving rise to periadenitis, and we often find a half-dozen diseased glands in the neck, glued together as it were by a periadenitis. Now, in tubercular adenitis of the glands of the neck, if the gland is not opened, the skin covering it will become red and thin, and it will eventually break down. Now, the appearance of a tubercular gland which has broken through the skin is very typical. The skin will have a ragged edge, which is undermined, and which is of a purplish color. In looking through the opening you will notice a greyish material. It is very important to have tubercular glands removed before they break down and grow together, because these glands then are quite adherent to the blood vessels and nerves, and to remove them in a satisfactory manner is almost impossible, and the only thing possible to do then is to make an incision, curette and pack the part with gauze and drain for an indefinite period. In the early stages of the disease it is advisable to urge operation, as at this stage the operation can be performed, the disease removed and the patient left with but little sign of the operation; whereas, if it is left until it breaks through the skin it will leave a puckered and ugly scar. It is astonishing how many of these glands we sometimes find in one patient. I remember an operation, as at this stage the operation can be performed, the diseased one hundred and twenty-five tubercular glands. We had an ordinary wash basin filled with them. They extended from the base of the skull to the axillæ under the arms, yet the scars were only slightly noticeable. Then another reason for the removal of these glands is to remove the danger of general infection of the patient. They are sometimes followed by tuberculosis, which affects the whole body, which is generally fatal. If these glands are left until they break, we will usually have tubercular conditions in the patient somewhere else, so that it is very advisable to have them operated upon in due time.

Now syphilitic adenitis: Syphilis may affect the glands in any of its stages. In the primary stage we have the inguinal



glands infected. The infection is from a chancre, and the glands have a shotty feeling. Then in the secondary stage of syphilis, we have an infection of the glands in the axillæ, and at the back of the neck. Again, we may have enlarged glands in the tertiary stage of syphilis. In this stage the glands which are infected undergo suppuration. The enlargement of the glands in syphilitic adenitis is of a fibrous character; it seems to be in the fibrous capsule and trabeculæ. They are not tender.

The subject of adenitis would not be complete without reference to other forms of enlargement of the lymph glands. First, we have lymphatic leukemia, in which we have a general enlargement of the glands all over the body, with an increase in the leukocytes of the blood. Their general feature is that they are separated from one another.

*Hodgkin's Disease.*—Affection of the glands all over the body and certain constitutional symptoms. In this disease they become enormously enlarged. This disease is sometimes called pseudo-leukemia, or lympho-sarcoma—this last name I think the most appropriate.

My time is now up, gentlemen, and I wish just to say that it is impossible to do justice to the subject of adenitis in such a limited time. I thank you for your kind attention to what must have proved a rather tedious, uninteresting half hour.

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## DON'TS ON THE USE OF "HOT AIR."

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Read before the Toronto Dental Society, May, 1903.

Don't remark at dental conventions or elsewhere that you never charge less than \$15.00 for a gold crown, nor less than \$10.00 for a gold filling. Young practitioners might believe it, while older practitioners might persuade you that Toronto is too small for such a genius.

Don't attribute unworthy motives to another practitioner because he joins some society, or because he attends church. The man who emits this variety of "hot air" usually spends Sunday at the operating chair. He finds it pays better.

Don't think you are too busy to attend dental meetings. The men who accomplish most and are really the busiest men are seldom heard to remark, "I am too busy."

Don't talk shop. If you talk about your work when you are out of your office, wise ones will know that you do not get enough work when you are in your office.

Don't try to impress people with the magnitude of your prac-

tice by remarking that you have appointments extending over the two following months. It may be that the man at the next corner does just as much work, and yet, because of greater executive ability, have his appointments only two weeks in advance. This latter course will be found more satisfactory to both dentist and patient.

Don't criticise adversely every piece of work you see. You might inadvertently happen on a piece of your own and have difficulty in making explanations.

Don't forget it takes a "rubber" bulb to force the hot air. If you are in the habit of dealing in this commodity don't look surprised if some fellow says "rubber." The market value of a hot air syringe is such that every dentist can afford to have one, *and always use the syringe*. Then it may not be said of us as it was of the Chicago policeman, "He was too chesty."

Finally, don't throw stones at another dentist, because we all live in glass houses.

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## DON'TS ON CROWN AND BRIDGE-WORK.

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BY W. SPAULDING, D.D.S.

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Read before the Toronto Dental Society, May, 1903.

Do not follow any rules laid down. Let your own best judgment take first place always.

Do not let a patient see you perplexed. It does not improve their confidence in your ability.

Do not use low-grade solder on a crown or bridge. It contracts, pits, oxidizes, and makes weak construction.

Do not fail to make your bridges strong at the abutments. There is where they will get the most strain.

Do not use fixed saddle bridges. Your patient likes to have a sweet breath as well as you do.

Do not use porcelain bridge-work in the mouths of too many members of the same family. Some of them may make their complaints in another dental office.

Do not make your fee for bridge-work at a rate of "so much per tooth."

Do not tell your patients or some other dentist's patients too much about what is entirely your own personal affair (money matters).



## REPORT OF COMMITTEE ON NEW IDEAS AND APPLIANCES.

BY W. L. G. SPAULDING AND GEO. GOW.

(Read before the Toronto Dental Society.)

*Mr. President and Gentlemen,*—This Committee has taken a field a little wider than its definition prescribes, and will seek to set before you in a very superficial way some of the progress being made in directions in which the dental profession is interested. It is, however, not intended that this paper shall be understood to contain a digest of modern advancement in dentistry, but merely to speak of what we have been able to glean from a few sources in a rather short space of time. In submitting this report your committee takes pleasure in the advancement made, and being made, as the result of the increasing demands of an active and progressive profession.

The Canadian dental profession has taken an advance step in introducing an effort to nationalize dentistry in Canada, and is waiting to take definite action at the next meeting of the Canadian Dental Association, to be held in Toronto in 1904.

The consolidation of business interests among the manufacturers and dealers of dentists' supplies, accompanied as it is with both advantages and disadvantages, has produced in Ontario, what might almost be regarded as a dental protective company of our own.

Dental periodic literature is vastly superior the world over to that of former years. Its connection with manufacturing interests is a whole chapter by itself. Papers and discussions read before dental societies form almost the entire matter of this literature, and are being better prepared than heretofore. This in parts accounts, no doubt, for the small production of dental text-books; results of research and investigation, coming to hand more promptly than through book publication. There are fewer new editions of old books to record. In the department of anesthesia some attention has been given.

Administration of nitrous-oxide with ether, oxygen or chloroform, has been given rather more attention of late. Nitrous-oxide with ether has unfortunately had a high rate of fatality lately, though the causes have in all cases been ascribed to something other than the anesthetic. On the whole, opinion seems to be general among eminent anesthetists that mixed anesthetics greatly increase the danger.

A method of anesthesia which has the merit of being both rational and scientific has been greatly practised by the Japanese

surgeons. The patient is extended and the anesthetist, using his thumbs as compresses, exerts a gradually increasing pressure upon the carotid arteries, thereby reducing the supply of blood to the brain. The brain becomes anemic and drowsiness follows, as, in ordinary sleep, cerebation becomes weak and unconsciousness follows. During this period great care is taken to allay nervousness and to prevent disturbance.

Narcotile and somnoform as general anesthetics have been confidently recommended by those who claim considerable experience with them, but since the first ripple of interest the dental profession seems to be slow in taking them into general use. In looking over statistics it is very apparent that those anesthetics which contain chlorine compounds are the most dangerous.

Much importance has been attached to the condition of the urine as a factor in the diagnosis of organic disease. After years of research Monsieur Michaels, of Paris, is firm in his opinion that the diagnostic value of saliva is much greater than that of urine, claiming also that he is able to diagnose the existence of any well-known disease by his method of examining the saliva.

Ethyl chloride has been used as a general anesthetic in France, and it is claimed that it is both safe and satisfactory for short anesthesia, but where it is prolonged the danger is as great, if not greater, than with chloroform.

In the department of bacteriology and pathology hardly a number of any dental journal comes to hand without some article under this head. In considering the pathology of the mouth, naturally the saliva comes early for investigation. Michaels asserts that no other fluid in the body so nearly represents the blood than saliva. In examining saliva he employs, in addition to tests by chemical reactions, the microscope, polariscope, and a knowledge of crystallography. Erosion of the teeth, the cause of which has always been considered obscure, he attributes to the action of sulpho-cyanide of potassium, present in the saliva. The percentage and character of the salts contained in the saliva bear, he claims, a direct relation to the intensity of disease. Work along these lines initiated by this authority is being taken up on this side of the water, and even greater results may be expected in the future than in the past.

Important work has been done right in our own institution, and it has been shown conclusively that none of the temporary stoppings used at present are effectual barriers to infection. Also worthy of note is the fact that ordinary good laundry work is capable of rendering our office towels free of germs. Tests have shown this to be true.

In crown and bridge-work the fanciful and pedantic efforts of many dentists of recent years seems to be largely replaced by a better understanding of the limitations and advantages of this method of prosthesis. The old problem of "how best to insert a



tooth to replace a lost incisor between sound neighbors," continues to be a puzzle. More exact methods of treating pulp-canals and preparation of roots for crowns seem to make the cutting off of a sound tooth to use as an abutment somewhat more popular. Since the advent of several decidedly superior porcelain bodies, porcelain bridge-work has been stimulated. A number of different appliances for the making of seamless metal crowns have found their way into the market. Only one that we have seen will make a seamless crown with the minimum stretching of the gold in the morsal surface region. Good manipulative ability and a thorough acquaintance with tooth forms will probably prevent the seamless outfit taking the place of the two-piece soldered molar crown. Another happy thought was the use of diatoric bicuspid and molars in bridge and crown work.

In the dental application of electricity, few that are new, but many new models of former electrical appliances, have been noted. In four leading dental journals the only treatment of electricity during 1902 was in the electric ozonation treatment of neuralgia.

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## DON'TS ON TAKING IMPRESSIONS.

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BY W. M. WUNDER, D.D.S.

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Read before the Toronto Dental Society, May, 1903.

Do not imagine a good impression can be taken only with the substance you use, and in the way you use it. When the impression has been taken in plaster-of-Paris do not forget to scrape what represents soft parts on the model.

Do not think a good impression of a full denture cannot be taken in impression compound.

When the mouth has soft spots the compound compresses those soft parts, and as much scraping of the model is not as necessary as when it has been taken in plaster-of-Paris.

Do not take out the impression when taken in compound, until you are positive it has thoroughly hardened and cannot change its shape. When an impression will not come out when thoroughly hardened, as in some partials, use plaster-of-Paris, and break off before it has become too hard, uniting the pieces afterwards.

In taking plaster impressions of partial cases, do not forget to vaseline the teeth.

Do not use more impression material than possible to avoid change in shape in cooling and hardening, or in other words have

the cup fit the mouth as nearly as possible, putting a rim of wax along the back of the cup when plaster-of-Paris is about to be used, to prevent the plaster running back on the soft palate, causing gagging, and to press the plaster-of-Paris against the soft parts. If the patient has been wearing a plate it is well not to forget it makes very often the best of impression cups, and with the hardened plaster impression saves the time required in making a trial plate for the articulation, insuring its accuracy.

Do not forget that gargling the mouth and throat with a solution of carbolic acid accomplishes the same purpose as swabbing with hydrochlorate of cocaine solution in cases where the impression material is inclined to cause gagging.

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## DON'TS ON FILLING ROOT CANALS.

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BY DR. GAUSBY.

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Read before the Toronto Dental Society, May, 1903.

Don't attempt to fill without sufficiently guarding the tooth from saliva.

Don't fail to dry the canals thoroughly and stop all bleeding before filling.

Don't attempt to fill without a good opening into the canal and good access to that opening.

In filling with chloro-percha do not use more eucalyptus or other essential oil than will just moisten the canals, and don't use the chloro-percha in thinner solution than necessary to work into the canal.

Don't fill all root canals with mummifying paste.

Whatever you use for the root canal filling don't fail to fill the pulp chamber with oxychloride or oxyphosphate to prevent discoloration.

Don't handle gutta percha points more than necessary, nor leave them lying round the cabinet. Keep them in boracic acid, either the crystals or solution.

Don't use the same broach to fill a root canal that you have just used in a putrescent pulp without at least trying to sterilize it.



## PULPITIS.

BY E. ZINKAN, D.D.S., TORONTO.

Read before the Toronto Dental Society, May, 1903.

Pulpitis is an irritation or inflammation of the dental pulp.

*Classification.*—(1) An irritation of the dental pulp. (2) An acute inflammation of the dental pulp. (3) A chronic inflammation of the dental pulp. (4) Fungus growth of pulp.

*Diagnosis.*—An irritation of the dental pulp is indicated by an uneasy sensation, which develops into pain of a gnawing or burning character. The affected tooth is sensitive to changes of temperature and painful usually in mastication. Acute inflammation of dental pulp is indicated by acute pain in the affected tooth, which spreads to surrounding parts. Pain comes on intermittently, and starts at the slightest provocation. It is liable to be worse when patient assumes a horizontal position, and especially at night. Chronic inflammation of the dental pulp is indicated by a pain less severe than in the acute form; coming on at irregular intervals, and incited by changes of temperature and the application of irritants.

*Fungus Growth of Pulp.*—Indicated by a vascular mass, partially or completely filling the cavity and joined to pulp by a small pedicle. Usually very sensitive and bleeds easily.

*Causes.*—All classes of pulpitis are originally caused by irritation of pulp. This may be caused by caries of the tooth, or by filling too close to the pulp. In this latter case the pulp is affected by either thermal shocks or by the irritating qualities of the filling material.

*Systematic Treatment.*—In some cases it is advisable to prescribe systemic treatment with a view to lowering the blood pressure. Sulphate of magnesia or Dover's powders are equally effective. If indications show the fluids of the mouth to be in an acid state, test with litmus and prescribe milk of magnesia or glyco-thymoline.

*Local Treatment.*—In almost all cases the first applications should be merely palliative. (a) Syringe cavity carefully; (b) excavate any loose debris with sharp spoon excavator; (c) dry and place pledget of cotton, saturated with warm oil of cloves in the cavity and seal with cotton and sandarac, avoiding undue pressure. If upon examination you discover a fungus pulp the method differs. Insert carefully beside the fungus a pledget of cotton with carbolic acid or cocaine. Leave for a few minutes and then with a sharp, large spoon excavator cut the fungus out. Then treat as in the other cases.

*Capping the Pulp.*—If upon the second sitting, decay can be excavated and there is no exposure of pulp, and it seems a favorable case, apply dam, and after thorough excavation and sterilization and drying, cover the bottom of cavity with antiseptic varnish, then a layer of chloro-percha, and then cement. Leave this way for a few weeks and then fill permanently.

*Devitalization.*—If devitalization proves necessary get direct exposure, if possible and advisable, and apply very carefully arsenic fibre, or any paste you have found satisfactory. Take especial care to hermetically seal the cavity, avoiding any pressure in doing so that would cause pressure on the pulp. Advise patient that tooth may ache for a short time. In cases of chronic inflammation and fungus pulp the devitalization is much more difficult, sometimes requiring several applications. Should the tooth be an anterior one, or should immediate filling be necessary, use pressure anesthesia.

In my own experience I have found Garrettson's paste to be satisfactory.

Formula:

R Acidi arseniosi.  
Morphinæ acetatis, aa. gr. 8.  
Creosoti, q.s.  
To make a stiff paste.

Sig.: To remain twenty-four hours for adults; ten hours for children.

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## DON'TS ON TAKING IMPRESSIONS.

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BY W. J. BRUCE, D.D.S.

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Read before the Toronto Dental Society, May, 1903.

Don't use any but clean impression cups.

Don't spend ten minutes taking an impression, and one hour preparing your model.

Don't take impression of patient's throat. You don't require it.

Don't instruct your patient how to bite. They will give you the correct occlusion oftener without any instructions.

Don't mix plaster too stiff. You are liable to press parts out of their normal position.

Don't use the same cup for every impression.



## Dental Education in Various Countries\*

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### REPORT OF DENTAL EDUCATION IN BELGIUM.

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BY DR. EDMUND ROSENTHAL.

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In answer to the first question, which reads, "What are the preliminary studies to be required of students before beginning their professional education?" Dr. Rosenthal said that in his belief it is desirable that students should receive a complete preliminary education of a high standard, and, above all, a useful one. He recommended that the education of the candidate should be carried on in such a way as to insure perfect intellectual development. He should know the literature of different periods and should be conscious of the progressive changes which the human race has been undergoing in order to reach the relatively perfect stage of civilization in which it finds itself at present. He advocated the study of living languages so that the student may readily become acquainted with the nature of the work that may be doing and the progress achieved in the different countries of the globe. He wisely called attention to the fact that the antagonism that has been exhibited toward the dental profession has been generally directed to the lack of proper literary and scientific training of dentists, while their technical ability has never been questioned.

He did not deem it necessary to enter into a discussion of the studies that should be included in the preliminary curriculum, not because he approves of the educational programmes in force at present in different countries, but because by following them the dental candidate is put upon the same footing as the students of the other liberal professions. But, besides these studies, the future dentist should be made to develop his manual ability from an early age. Manual ability can be acquired. It is not indispensable that dexterity should be an innate quality, for even those that are not naturally so inclined can in time become reasonably skilful. He attaches a great deal of importance to the study of drawing, especially drawings of the head from nature. Every dentist should be able to draw the ideal facial lines of a given type, according to its origin, temperament, and special characteristics. The sooner the manual and artistic education is undertaken the more profitable it will be, for by following this plan it becomes possible to devote a great deal more time to the theoretical branches without detriment to the technical

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\* We are indebted to the *Dental Cosmos* for printers' proofs of these articles.

ones. The young man who at the age of 22 or 23 is not capable of using his fingers for anything beyond holding a pen is certainly in need of a professional apprenticeship of longer duration than is the one who has applied himself to the development of his manual and artistic faculties, and who is accustomed to observe and compare, and whose fingers are trained to carry out the suggestions of his brain. It matters not in what direction this manual ability is trained, as long as it exists it can be directed at any time to any line of work; but, if it be wanting, a considerable period of time is necessary to acquire it, and the practitioner will always regret having undertaken too late the manual education necessary to perform the work pertaining to his profession. In carrying out the duties of his calling the dentist is called upon to play the part of artist, sculptor, and creator, inasmuch as he has to modify disfigured faces and to repair the ravages of age. If guided by routine only—that is, by a mere utilitarian comprehension of his profession—he certainly may render useful service, but he will neglect the esthetic side, and will never experience the high satisfaction of executing perfect work from the point of view embracing both the artistic and the useful.

The practitioner who applies himself to the study of nature and strives to imitate her best work ceases to be the handicraftsman and becomes the artist in the full sense of the term; but, with rare exceptions, one cannot become either an artist or a conscientious practitioner without developing the germs of art which exist in every man. Through the manipulation of clay by molding heads after nature and according to selected models that impress upon the mind the lines of the human face, and by classifying these observations, it becomes possible to determine the expression to be given to the edentulous face in order to restore the original beauty that is now absent.

Discussing the second question, which reads, "In what are dental studies to consist, how long ought they to last, and what should be the order of the programme?" he said that the course should be one of four years. The subjects of the first year should be—Chemistry, physics, botany, mineralogy, metallurgy, a considerable number of practical exercises, dental prosthesis, drawing and modelling. Second year—General anatomy, physiology, embryology, pharmacodynamics, general histology, practical work in microscopy, dental prosthesis. Third year—Special comparative anatomy of the mouth, general and special pathology, pathological anatomy, surgical and medical pathology, operative dentistry, practical work in operative dentistry, pathology, microscopy, and dental prosthesis. Fourth year—Medical and surgical clinics, theory and practice of surgical operations, orthodontia, operative dentistry, general hygiene



in its relation to dentistry, oral hygiene, physiological and pathological analysis of human secretions, saliva, urine, etc., practical work in operative dentistry, prosthetic dentistry, facial restorations, bridge work, and porcelain work.

In answer to the third question, "What branches of the studies taught in medical schools must the student of dentistry follow?" the essayist said that, with the exception of the practical work in the medical and surgical clinics, all the branches of the four years' curriculum should be given in the dental school according to special programmes, but as dental schools are not often in the position to afford the material equipment necessary for the complete education of the dentist, the dental student will have to pursue in the medical schools those courses in science for which the medical laboratories are especially adapted, possessing as they do the appliances and collections of specimens suited to and indispensable for this kind of work. From the fact that part of the staff of the universities and medical schools devote their time exclusively to the study of science and to laboratory work, they are better fitted, in the essayist's estimation, for imparting such instruction than men who have divided their time between teaching and practising.

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## DON'TS ON CROWN AND BRIDGE-WORK.

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BY CHAS. W. LENNOX, D.D.S., TORONTO.

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Read before the Toronto Dental Society, May, 1903.

Don't try to transfer even the simplest piece of bridge-work from cast to investment without the use of a matrix.

Don't use a spur-bearing against an adjoining tooth as a support, because it does not support, and it does induce decay.

Don't use an open-face cap unless compelled to do so. I use a full gold on inconspicuous cuspid in preference.

Don't try to complete a bridge in one soldering. Always solder backings to teeth separately, and join together at second soldering.

Don't be careless; nothing is ever "near enough" in bridge-work; it must be absolutely correct.

## ABSTRACTS OF DENTAL EDUCATION IN GERMANY.

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BY PROF. HESSE, LEIPZIG.

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In Germany the practice of the healing art is free, and the only legal restrictions apply to the use of the titles of *Arzt* and *Zahnarzt*, which belong only to the candidates who have successfully passed the examinations leading to those degrees. Referring to the dental institutions of Germany, he considered it necessary to say a few words regarding their organization, as the several communications which have been lately published by Dr. W. C. Barrett show that foreigners are lacking completely in information on this question. In Germany all professors of dentistry are members of university staffs, and are part of the faculties of medicine. Their special work consists in the theoretical and practical teaching of dentistry, and they are in this particular sense absolutely independent. The study of natural and medical sciences is carried out in the university under the direction of the faculty of medicine. Apparently it is this arrangement which has caused Dr. Barrett to believe that our education in the practical branches is inferior to that of the United States. We believe, however, that our organization offers a great advantage, as it permits of a thorough specialization and concentration of the teaching staff to dental science and art; at the same time our students have the opportunity of becoming familiarized with medicine,—an association which we consider important enough to recommend its consideration in the countries in which education is not carried out on this plan.

He then refers to the condition of admission to examinations leading to the degree of *Zahnarzt*, and describes in detail the various topics upon which the student is examined.

REPORT ON THE THREE QUESTIONS PROPOSED BY THE INTERNATIONAL COMMISSION OF EDUCATION OF THE  
INTERNATIONAL DENTAL FEDERATION.

L. Guillermin, *Medicin-Dentiste*, Geneva, Switzerland, presented the following:

Question I. "What are the preliminary studies to be required of students before beginning their professional education?"

Two kinds of studies must be considered, namely—(a) the secondary education, and (b) the university theoretical or superior studies.



(a) The secondary (preliminary) studies should be the same as for the study of medicine.

(b) The superior studies, in my estimation, should embrace the complete study of medicine, but it would be desirable in view of its extensive scope to limit the course in medicine to four years. This would constitute, not the basis of the cone as advocated by Sir Michael Foster in Cambridge, but the trunk, from which would branch out the different specialties, otology, laryngology, ophthalmology, stomatology, etc.

If the organization of dental education upon this basis could not be carried out, the plan adopted for the obtaining of the Swiss federal diploma is the one that we would advocate. In this curriculum one year is devoted to natural sciences (physics, inorganic and organic chemistry, botany, zoology, and comparative anatomy), one to the medical sciences (anatomy with dissection of the muscles, vessels, and nerves of the head and neck; practical work in microscopy and theoretical anatomy), histology, embryology, and physiology in their bearing on dentistry; practical courses in general pathology and pathological anatomy and in special pathology and therapeutics of the mouth; attendance during two semesters upon one of the surgical clinics.

Question 2. "Of what are dental studies to consist, how long ought they to last, and what should be the order of the programme?"

After the pursuance of the theoretical studies above indicated, a minimum of two semesters should be devoted to clinical dentistry, three semesters to prosthetic dentistry, and three semesters to operative dentistry. In Switzerland the law regulating medical examinations allows the three semesters on prosthetic dentistry and the three semesters on operative dentistry to be taken in the laboratory and in the office of a licensed dentist.

In the dental school of Geneva the curriculum is so arranged that the professional studies may not take up more than three semesters. In some countries, as well as in some of the cantons of Switzerland, the diploma of physician gives *ipso facto* the right to practise dentistry. This is a provision which we disapprove of, as we believe that physicians should not be permitted to enter upon the practice of dentistry unless they have pursued three semesters of its professional studies.

This report was followed by one on "Dental Legislation in Switzerland," by the same author. A *resume* of this report here follows:

In the Canton of Geneva the dental school grants the diploma of *medecin-chirurgien-dentiste*, which has now been substituted by the licentiate in dental surgery. This diploma confers by itself the right to practise dentistry, but only in the Canton of Geneva. Incidentally it may be stated that the diploma of doctor of medicine of the faculty of Geneva likewise confers

only the right to practise medicine in the canton in which it is granted. These diplomas are easier to obtain than the federal diplomas. The dental school of Zurich does not issue diplomas; it merely prepares the students for the federal examinations. The federal diploma is one of the requirements for admission as a regular member of the Swiss Odontological Society. By a singular anomaly in a country as enlightened as Switzerland, one canton, that of Glarus, and two demi-cantons, those of Basle-Campagne and Appenzell, have declared that the practice of medicine and dentistry is free. It must be added that sometimes the authorities of some of the cantons confer the right to practise to holders of foreign diplomas, provided that they confer the right to practise in the countries in which they are granted.

Physicians, except in some cantons, as in Zurich and Berne, have likewise the right of practising dentistry without the necessity of any special professional training. Dental education is given in Switzerland in two schools, that of Geneva and that of Zurich. Recently the chair of odontology has been created in the University of Basle. This course comprises—(1) Pathology and therapeutics of the mouth and teeth; (2) anatomy of the mouth and teeth; (3) diseases of the mouth and teeth; (4) operative dentistry and prosthesis; (5) stomatology. Courses 1, 2, and 5 are given at the university; courses 3 and 4 in the office of the professor.

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## DON'TS ON CHILDREN'S TEETH.

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BY JOSEPHINE WELLS, D.D.S.

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Read before the Toronto Dental Society, May, 1903.

Don't attempt to work for the child until you have gained its confidence.

Don't deceive a child by promising you will not hurt it. "You know better."

Don't be afraid to let the child see the instruments you are using.

Don't worry the child by prolonging the operation.

Don't extract unless absolutely necessary.

Don't be deterred from using your judgment as to which is the proper course in each case, by anything the parent or guardian may advise.



## Proceedings of Dental Societies

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### ONTARIO DENTAL SOCIETY.

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The fourteenth annual meeting of the Ontario Dental Society was held in the College Building, 93 College Street, Toronto. The first session was opened at two o'clock, Dr. Moyer, President, in the chair. As minutes had been previously printed, it was moved by Dr. Martin, seconded by Dr. Wunder, that they be taken as read. (Carried.)

Dr. Abbott read report of the Programme Committee as follows: "Your Committee has held several meetings, at which the programme was outlined. The work has been greatly augmented by the lack of interest shown by those corresponded with, and their delay in replying. In some cases it has been necessary to telephone or telegraph for replies to letters. As soon as the programme was completed, one thousand copies were mailed to all practitioners in Ontario, and to some in the United States. The exhibits have been made a special feature of the meeting, and have proved very satisfactory."

On motion of Dr. E. C. Abbott, seconded by Dr. Hermiston, the report was adopted.

Dr. H. R. Abbott, Hon. President, took the chair, while Dr. Moyer, retiring President, read his address, after which Dr. Mills, of Brantford, gave a description of the clinics, which he later demonstrated.

Dr. Cowan was then called on to read his paper on "Words Improperly Used by Dentists, Considered from an Ethical Standpoint." This paper caused a very lively discussion, which was opened by Dr. George Hermiston, followed by Drs. Steele, Bentley (of London), Charles Bean, Hermiston, Irwin, Charles E. Pearson, Mitchell, Eaton, A. E. Webster, John Robertson, H. Clark, J. B. Willmott, Seccombe, Frawley, C. N. Abbott and W. A. McLaren. Dr. Cowan was then called on to close the discussion.

The evening session was called to order at eight o'clock. Minutes of former session were read and approved.

Dr. J. B. Willmott introduced Prof. Guilford, dean of Philadelphia College. Prof. Guilford read his paper on, "Which Class of Cavities Demands Gold and Which Porcelain Fillings?" The discussion was opened by Dr. Harold Clark, and followed by Drs. F. J. Capon, John F. Ross, Thomas Henderson, John Mills, Cross, Burns, John E. Wilkinson and Baird. Prof. Guilford was then called on to close discussion.

The Treasurer presented the following report, showing a balance on hand of forty-six dollars and forty cents (\$46.40):

### TREASURER'S STATEMENT, 1902.

#### *Receipts.*

February, 1902—Cash from last year .....	\$59 94
February, 1902—Membership fees .....	183 00
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	\$242 94

#### *Expenditure.*

Rental of showcases .....	\$11 00
Postage (Secretary) .....	1 25
Postage, stationery, telegrams (Treasurer) ..	5 00
Postage (Supervisor of Clinics) .....	0 95
Postage, stationery, telegrams, telephone and express (Secretary Programme Committee)	5 20
Postage on programmes .....	8 00
Typewriting copies of papers .....	7 00
T. B. Jones, janitor .....	5 00
Dr. F. B. Noyes, Chicago, expenses .....	40 00
Dr. J. S. Young, Detroit, expenses .....	20 00
G. B. Jones, stenographic report .....	43 50
Customs .....	0 50
Envelopes for programmes .....	1 40
Preliminary programmes .....	12 00
Programmes .....	16 00
Badges and pins .....	2 15
Park Bros., photo of bust .....	1 25
Commission on money order .....	1 89
Delivering proceedings in city .....	0 20
Engraving die and letter heads and envelopes	14 25
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	\$196 54

Cash on hand ..... \$46 40

H. E. EATON, *Treasurer.*

Toronto, February 18th, 1903.

On motion of Dr. Eaton, seconded by Dr. Brownlee, the report was referred to the auditors.

Dr. Moyer, of Galt, gave a paper on "An Odontome," illustrated by lantern slides. On motion, meeting adjourned.



## SECOND DAY.

Third session was called to order by President at 9.30 Tuesday morning. After minutes of former session had been read and adopted, Dr. J. E. Wilkinson, of Petrolea, read his paper on "Some Cases of Oral Surgery, which the Dentist Should be Able to Diagnose and Treat." Discussion was opened by Dr. P. P. Ballachey, followed by Drs. A. E. Webster, J. B. Willmott, Martin, Baird, A. H. Allan, Swann, Mitchell, Hermiston. Dr. Wilkinson was then called on to close the discussion.

Nominations for officers for ensuing year took place, and elections resulted as follows: Hon. President, S. Moyer, of Galt; President, R. E. Sparks, of Kingston; 1st Vice-President, A. W. Thornton, of Chatham; Secretary, Guy G. Hume, of Toronto; Treasurer, H. E. Eaton, of Toronto; Supervisor of Clinics, W. G. L. Spaulding, of Toronto; Archivist, W. E. Willmott, of Toronto; Programme Committee, G. S. Martin, George Gow, A. E. Webster, E. C. Abbott, R. G. McLaughlin.

District Representatives—No. 1, A. W. Winnett, of Kingston; No. 2, W. Adams, of Whitby; No. 3, C. E. Pearson, of Toronto; No. 4, R. J. Husband, of Hamilton; No. 5, P. P. Ballachey, of Brantford; No. 6, G. P. Allan, of Mount Forest; No. 7, J. E. Wilkinson, of Petrolea.

## FOURTH SESSION—TUESDAY AFTERNOON.

Minutes read and approved, and after election of officers, which resulted as above, Dr. Guilford gave his paper on "Necessity for and Obtaining of Proper Occlusion in Artificial Dentures." After reading of this paper, the President read a telegram from Dr. C. N. Johnston, of Chicago, conveying his fraternal greetings and best wishes for a successful meeting.

Dr. Brownlee opened the discussion on Dr. Guilford's paper and was followed by Drs. Steele, Eaton, J. F. Adams, Swann, C. E. Pearson, Mills, Seccombe, Willmott and Haslitt. Dr. Guilford was called on to close the discussion.

The following motion was moved by J. B. Willmott, seconded by G. S. Martin, and carried: "That H. T. Wood, M.D.S., Cobourg, be, and by the passage of this resolution is, elected an honorary member of the Ontario Dental Society, and that the Secretary notify him of such election." Moved by J. B. Willmott, seconded by G. S. Martin: "Whereas Dr. H. T. Wood, for many years an honored member of the Ontario Dental Society, and a faithful attendant at its annual sessions, is now deprived, by the weakness and infirmities of age, of the pleasure of meeting with his professional brethren; therefore resolved, that this Society in session assembled, express to Dr. Wood its high appreciation of his valuable services to the dental profession of Ontario; its loving sympathy with him in his retirement, and the

hope that years of happy old age may yet be granted him." Carried.

Moved by G. S. Martin, seconded by F. J. Capon, "That Prof. Guilford be made a honorary member and receive the hearty thanks of this society." Carried.

Dr. Steele read the auditor's report.

On motion of C. E. Pearson, seconded by G. M. Hermiston, the Convention was adjourned.

The following letter was subsequently received from Dr. Wood, *re* resolution in minutes :

COBOURG, March 4th, 1903.

*To the Ontario Dental Society :*

GENTLEMEN,—Your communication of February the 24th received, and I was deeply touched by this new evidence of your kind and thoughtful remembrance. It gives me profound satisfaction to feel that I am still a member of the society, which was for so many years the object of my deepest interest, and I am truly grateful for the privilege. This winter completes the half century of my work in dentistry, but my faith and hope for the Society point to a larger and fuller life in the future, which could be no greater than my desire for it. Thanking you for your good wishes, which your action will help to make real, I am,

Fraternally yours, HENRY T. WOOD.

GUY G. HUME, *Secretary*.

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### ELGIN DENTAL SOCIETY.

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The regular meeting of the Elgin Dental Society was held Monday evening, June 8th, at the residence of Dr. Fear, Aylmer. The meeting was called to order by the President, Dr. Fitzsimons. The Secretary read the minutes of the last meeting, which were approved. It being election night the following officers were elected for the ensuing year: President, H. A. Way; Vice-President, F. E. Bennett; Secretary-Treasurer, E. W. Honsinger; Chairman of Executive, W. J. Fear; Membership and Ethics, T. C. Trigger; Programme, E. W. Honsinger.

The next meeting will be held in St. Thomas the second Monday in October.

The business of the evening being completed those present



adjourned to the spacious dining-room and partook of an excellent lunch, after which the pent-up oratory of some of the members was given free ventilation. Excellent speeches were made by the retiring President, Dr. Fitzsimons; by the President-elect, Dr. Way, and others. Dr. Way said:

*Gentlemen*,—I need not say that this honor which you have to-night conferred upon me is unexpected. Most persons have to work hard for recognition; some are lucky enough to have it come more easily, while a limited few have it forced upon them, even without special merit; and that's my case. This thing of holding office is not without some trials, as a couple of our St. Thomas members, Drs. Teskey and the late Burns, both in our City Council, could testify, who were glad enough to get out after a fair trial.

I have often wondered at the lively rivalry for public office where there were no salaries attached. Probably I have not as yet got sufficiently onto the "substance of things sought for" in municipal matters, but if by holding fast to the Presidential chair of this Society for the coming year there's to be something "good to eat" come out of it, just throw the wink, before it's too late.

This local society is three years old to-night, and is coming on as a right good, lusty child; it appears quite normal in all its parts. But I must right here admit that at the time of its birth I was somewhat lacking in faith as to whether the youngling would live to get through its first teething period; not that it was prematurely born, but somehow I was fearful (and yet I don't approve of being particularly afraid of anything), but I was afraid that its first wail would be for a high fee bill, and in the endeavoring to maintain this the youngster himself would be forgotten and finally smothered in his own wrappings. I now feel that in this I was mistaken and that Drs. Teetzel and Teskey have perhaps builded even wiser than they knew.

We older heads were inclined to suspect the future actions of the younger newcomers, who had so recently been doubling upon us in point of number; doubtless they equally suspected us, as fossilized cranks, grown staid in our ancient ways; but, gentlemen, let me express my own feelings to-night. These young men, without exception, have been suspected wrongfully; they have been accused without the facts, and I will say, have proved their worth and their loyalty by continuing with us on the roll, with but one exception, and he is not materially at variance with us; and just right here, one more word in the same line. I am quite certain that had it not been for the loyalty and the work done by the young members in bracing their shoulders to the wheel, there would have been no first meeting of the Western Ontario Dental last June.

Gentlemen, I also approve of what some one has aptly termed "growing old gracefully." I don't see a disgruntled face here

to-night. I approve of rather raising the corners of the mouth up than down. If you go hunting for goblins and actually fearing that you will meet one, you can find one to suit you in any dark closet, even in a Gamey nightmare (but mind you I'm no politician).

Really, gentlemen, I don't want to praise you overmuch, or cause us to become vain of this our own society. It has been said that there have been times when some societies scarcely knew whether they had a society or not, and that it took some unusual event to bring them out. I trust that will not be our experience.

Like every human concern, the Elgin Dental has passed through several internal conflicts, and come through whole with but a single casualty, and that instance we feel to be more in the nature of a case of suspended animation. Nobody is to-day actually at variance. What we need most is to cultivate still more a fraternal spirit of intercourse, and to make our regular meetings so useful and bright that he will accord to the committee's next visit and again drop into line. If we could but extend this "better way" of doing, so as to cover this town of Aylmer as still another harmonious centre, I am sure that our St. Thomas hearts would become full in gratitude. If we could all but fully realize that this big earth of ours, this banner province, this county and this very Aylmer, is fully large enough to move about in, clashing would cease. The days of duelling are past; knife to knife encounters, like all civil wars, must all the sooner end in a truce, for "terms" of settlement.

Our Society's work for the current year I feel is clear enough; having tested our capacity for holding together quite thoroughly, we shall continue right on. The "bill of fare," as printed for at home, I feel is right well respected, at least, I find each one wants "all I can get," and is aiming for best results, that means remuneration to all. We are certainly in better shape than before organization. In the way of arranging programmes for the coming year, and after the hot season is finally over, I think it well to go right on with practice papers on living subjects. Then, too, I believe that clinical work ought to be sandwiched in, as the way opens—altogether I feel that the Elgin Dental's future is safe.

Thanking you, gentlemen, for this marked expression of your confidence and your respect.

It was moved by Dr. O. W. Kennedy, seconded by Dr. Teetzel, that a hearty vote of thanks be tendered Dr. and Mrs. Fear for their kind hospitality. Carried unanimously.

F. E. BENNETT, *Secretary*.



## WESTERN ONTARIO DENTAL ASSOCIATION.

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The second annual convention of the Western Ontario Dental Association will be held at Chatham, on Tuesday and Wednesday, June 30th and July 1st, 1903, in Oddfellows' Auditorium. The following programme has been arranged:

Tuesday, June 30th, 1903.—1.30 to 2.30, Registration. 2.30 sharp, Address of Welcome, by His Worship Mayor W. E. McKeough; "A Short Cut to a Metal Plate," an illustrated paper, Dr. H. H. Way, St. Thomas; "The Immediate Treatment and Filling of Teeth with Devitalized Pulp," Dr. A. J. McDonagh, Toronto; "Posts and Post-Holes," Dr. Harold Clark, Toronto; "Some Esthetic Failures in Dental Prosthesis," Dr. J. B. Willmott, Toronto; "Adhesive Attraction in Dentistry," Dr. E. A. Teskey, St. Thomas; "Overcrowded Condition of Dental Profession and the Remedy," Dr. C. H. Reynolds, Strathroy; "The Use of Porcelain in Crown Work," Dr. J. A. Sherwood, Buffalo; "A Plea for the Preservation of Children's Teeth," Dr. H. R. Abbott, London.

Evening session.—8 to 10, Election of Officers first order of business. 10.00 to 12.00, two hours of song and story.

Wednesday, July 1st, 1903—Clinics: "Treatment.—A Case of Oral Surgery," Dr. J. E. Wilkinson, Petrolea; "Gold Filling, using Vernon Gold and Chrenshaw Matrix," Dr. J. Young, Detroit; "The use of Porcelain in Crown Work," Dr. J. A. Sherwood, Buffalo; "Tin-Gold Filling," Dr. E. Doyle, Brantford; "Porcelain Crowns and Bridges," Dr. E. C. Abbott, Toronto; Selected, Dr. A. E. Webster, Toronto; "Making Glass Saliva Tubes," Dr. Harold Clark, Toronto; Selected, Dr. A. J. McDonagh, Toronto; "Replacing a Facing on Crown," Dr. G. E. Bentley; "Extirpation of Pulp, using Hurd Apparatus," Dr. F. E. Bennett, St. Thomas. Papers follow in consecutive order.

Also exhibition of narcotile anesthesia at the Tuesday evening session.

An important part of the meeting will be a question drawer, under the supervision of the President. Come prepared with questions.

All railroads will give the usual Dominion Day excursion rates.

Hotel Rates.—Garner, \$2.00 per day; Rankin, \$1.50; Merrill, \$1.50; C. P. R., \$1.50.

The Dental Supply Houses will make exhibits.

You will see that no arrangement has been made for the opening of discussion on any of the papers by any particular person. A free spontaneous discussion is most beneficial. Come prepared to take part.

A. W. THORNTON, *President.*

G. T. KENNEDY, *Secretary.*

## RESULTS OF THE FRESHMEN AND JUNIOR EXAMINATIONS OF THE ROYAL COLLEGE OF DENTAL SURGEONS.

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The results of the recent examinations in first and second years at the Royal College of Dental Surgeons are as follows:

Freshmen passed—Intermediate anatomy, intermediate chemistry, histology, bacteriology, metallurgy, operative technic, prosthetic technic and practical technic. Those marked \* will require to complete further practical technic:

Geo. Arthur M. Adams, John Anderson, Fred. Albert Axon, John Archibald Beatty, Sidney W. Bradley, Ernest Edwin Bruce, Donald Roy Callum, \*John William Clay, Nelson Stanley Coyne, James Weldon Coram, Morley Ash Day, \*James Martin Deans, William H. Doherty, Edgar Allan Dolson, \*Alexander Smith Elliott, Marvin Arnold Fallis, Archibald Wm. Forbes, Felix A. French, \*William John Garland, William Howard Geddes, William Ryerson Glover, Margaret Gordon, George Maxwell Gorrell, \*Edmund Alex. Grant, \*John Ferguson Grant, John Thomas Hackett, Elmer James Hambly, Mildred Hanna, Charles George Hartley, Frank Caister Harwood, Edward Alfred Hill, \*Charles J. Houlett, \*Richard William Hull, Charles Jos. Fred. Jackson, Walter Jeffs, Emery Coe Jones, \*Alexander Jordon, Herbert H. Kelpatrick, Ernest Kelly, Harry Miles Kinsman, \*Albert Lester, Bradley W. Linscott, \*Daniel Webster Massey, \*Jos. Edward Middleton, \*Charlton Arthur Mills, Wm. Craven Macartney, \*Geo. Arthur McDonald, Robert McGill, \*Herbert A. McKim, Gordon Balgarnie New, William Joseph Price, Clara Pritchard, William Henry Reid, George Fulton Roulston, \*N. Hilliary Rutherford, Tom Nelson, M. Smith, George Darling Smith, W. Clendon Smith, \*Gerald Lewis T. Smith, Ernest Bland Sparks, Lorne Daniel Steele, Charles Bowen Stover, John Fraser Taylor, \*Lorne Garfield Thomson, Garnet Beverley Tovell, Arthur Malon Weldon, Ernest A. Wessels, \*Ghent Wilson, \*Edwin Herbert Wilson, \*James Malcolm Wilson, David Donald Wilson, \*Ed. Wm. Jos. Woods.

To take further examination:

Chemistry—\*L. J. D. Fasken, \*M. Keeley (prevented by illness from writing), \*R. C. McMurray.

Histology—B. C. Becker, \*S. N. A. Campbell, \*C. H. Fowler, G. M. McMann, \*G. C. Philips.

Comparative dental anatomy and bacteriology—F. C. Becker, S. N. A. Campbell, F. L. Heath, \*E. H. Henry, J. F. Mc-



Donald, G. M. McMann, \*H. V. Pogue, \*A. R. Staples, H. L. Watt. J. A. Bothwell, \*A. M. Fuller, \*B. A. Stokes were prevented by illness from writing on the examination.

Juniors passed in final anatomy, practical chemistry, theoretical chemistry and intermediate physiology, medicine and surgery, operative dentistry, prosthetic dentistry, materia medica, orthodontia and bridge-work—Jas. M. Abbott, Morley E. Brad-don, Howard E. Bedingfield, Walter Bonney, John P. Brown, T. E. C. Butler, William J. Cameron, W. H. Caverhill, Frederick J. Conboy, Percy T. Coupland, Albert Colborne Demille, James Franklin Dillane, Robert Albert Dunlop, Robert Wilson Fallis, Edward M. Fulton, Frederick R. Gordon, Nicholas Grosjean, William Nelson Gunning, Fred. W. L. Hamilton, Morgan S. Hawkins, George Harold Holmes, Frank William How, Fred. Charles Husband, Arthur Johnston, Horton H. Kirby, Jack Lappen, R. Melville Large, Oliver Newton Leslie, Robt. Arch. Mac-Gillivray, Walter Hubert McNally, D'Arcy Nethercott, Neil Smith, Leonard Ernest Stanley, Robert Martin Stewart, Archibald Alex. Stewart, Albert Edward Wark, Owen Clarence Watson, William Collins Wickett, Hilliary K. Wilkinson, Elmer Franklin Willard, Horace Wood, Everett Roy Zimmerman.

H. W. Brace and R. M. Carruth, prevented by illness from completing the examination, passed in those subjects on which they wrote.

Passed in intermediate anatomy—H. J. Hodgins, O. N. Leslie, J. G. Manning, S. A. Weismiller, B. E. Wilson. Passed in intermediate chemistry—R. M. Carruth, C. O. Fallis. Passed in metallurgy—O. N. Leslie. Passed in final chemistry—C. A. Corrigan, A. L. Walker.

To take further examinations: Anatomy—H. W. Anderson, G. H. Cook, C. O. Fallis, E. L. Kenny, G. W. K. Noble, W. Sivers, J. A. Thompson, S. A. Weismiller, B. E. Wilson, R. L. Arthurs.

Chemistry, practical paper—E. L. Kemp, J. B. Lundy, W. Sivers, C. Trothan.

Chemistry, theoretical paper—S. M. Edwards, W. J. Lea, H. A. Nesbitt, R. L. Arthurs.

Physiology—H. J. Hodgins, W. Sivert, B. E. Wilson.

Operative dentistry—S. Eckle, W. J. Lea, J. A. Thompson, H. B. Ward.

Prosthetic dentistry—G. H. Bray, S. Eckle, H. J. Hodgins, H. A. Nesbitt, W. Sivers, S. M. Thomas, H. B. Ward.

Orthodontia paper—R. L. Arthurs, R. J. Hand, E. L. Kenny, H. A. Nesbitt, J. A. Thompson, C. Trothan, H. B. Ward.

Orthodontia technic—S. A. Weismiller.

Bridge-work—Hodgins, Weismiller.

First year technic—Bray, Butler, Cameron, Carruth, Cook, Fulton, Kenny, Sivers, Thomas Weismiller, Wilkinson, Wood.

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## OFFICERS OF THE TORONTO DENTAL SOCIETY.

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At the annual meeting of the Toronto Dental Society May 14th, 1903, the following officers were elected: Hon. President, W. E. Willmott; President, Dr. Martin; 1st Vice-President, Dr. Seccombe; 2nd Vice-President, Dr. Mason; Secretary, W. Spaulding; Treasurer, Dr. Kennedy; Archivist, Dr. Martin; Councillors, Drs. Eaton and Hudson; Members of Ethics Committee, Drs. M. B. Mallory, Lennox and McDonagh; Dinner Committee, Drs. W. E. Willmott, Clark and Seccombe; Press Editor, C. E. Pearson.

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## WESTERN ONTARIO DENTAL ASSOCIATION.

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The second annual convention of the Western Ontario Dental Association meets at Chatham on June 30th and July 1st next. Papers on Clinics will be given by Drs. Sherwood, Buffalo; Young, Detroit; A. J. McDonagh, J. B. Willmott, Harold Clark, A. E. Webster and E. C. Abbott, Toronto; J. E. Wilkinson, Petrolea; E. Doyle, Brantford; H. H. Way, E. A. Teskey and F. E. Bennett, St. Thomas, and others. Programmes will be completed and mailed in about two weeks.

A. W. THORNTON, *President.*

G. E. KENNEDY, *Secretary.*

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## EASTERN ONTARIO DENTAL ASSOCIATION.

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THE annual meeting of the Eastern Ontario Dental Association will be held in Brockville on July 7th, 8th and 9th, 1903.

W. B. CAVANAGH, *Secretary.*



## ADDRESSES OF THE RECENT GRADUATES OF THE ROYAL COLLEGE OF DENTAL SURGEONS.

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- Arnold, Ernest F., Winnipeg.  
Badgley, Fred. N., Toronto.  
Baker, Ernest S., Toronto.  
Baker, George F.  
Ball, W. H., Walton, Toronto.  
Bald, Geo. W., Sault Ste. Marie.  
Bradley, J. A.  
Corrigan, Matt. P., Albuquerque, N. Mex.  
Coram, Geo. H., Walkerton.  
Carcaud, W. A., New Carlisle, N.B.  
De Renzy, H. W., Carleton Place.  
Dickson, Rollin O., Toronto.  
Dixon, Wm. V., Southampton.  
Doran, Leo, Port Arthur.  
Dudley, Robt. Lorne, North Bay.  
Everett, Geo. W., Hamilton.  
Fowler, Howard, Clinton.  
Fraser, Geo. Alex., Parkhill.  
Garvin, Matt. Henry, Winnipeg.  
Hassard, Oscar G., Toronto Junction.  
Heacock, Alva E., Midland.  
Hendry, Frank Garfield.  
Irvine, Herbert, Lindsay.  
Johnston, Jas. Bremner, Whitby.  
Juvet, Charles Henry, Ottawa.  
Kennedy, Wm., Woodstock.  
Kinnear, Jas. W.  
Knight, Fred. T., Picton.  
Long, Geo. Edwin, Blyth.  
McGahey, M. McCloskey, Toronto.  
McGuire, Geo. Ed., Dunnville.  
McKenty, Alex., Tweed.  
McKenna, Hy. Patrick, Toronto.  
McMurray, Wm. John.  
MacLachlan, John P., Sudbury.  
Milsap, William T.  
Moore, Wm. D. N., Chicago.  
Moore, Geo. F., Kingston.  
Munroe, Geo. A., St. Elmo.  
Pickard, Ed. Chas., Huntsville.  
Pinard, Archille A., Ottawa.  
Popplewell, Harris, Brantford.  
Price, Walter G., Toronto.  
Richardson, Henry O., Newmarket.  
Richardson, H. E. W., Toronto.  
Rutherford, Arthur P., Hawkesbury.  
Sanderson, Herbert M., Toronto.  
Slade, Jas. Arthur, Bolton.  
Summers, Albert Victor.  
Taylor, Charles Berkley.  
Thompson, T. Geo., Barrie.  
Walt, Chas. F., Sterling.  
Williamson, Fred. L., Cayuga.  
Will, John Ralph, Brantford.  
Wood, Wm. Graham, Toronto.  
Wylie, Thomas H.

## Selections

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### GERMICIDES: SOME DENTAL USES.

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BY ELGIN MAWHINNEY, D.D.S., CHICAGO, ILL.  
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Read before the Chicago Dental Society, January 6th, 1903.

A germicide is an agent that destroys germ life and their spores. It is a term of recent origin, and is derived from the Latin, *germen* = germ + *cædere* = to kill; literally, to kill germs. In dental literature the term is quite generally used to mean pus-germ destroyers. It has only since the germ theory of putrefaction become understood that this word, germicide, has taken on its present significance. The recent studies into the phenomenon of life, physiological chemistry and pharmacology, bid fair to completely change our present system of therapeutics. We are beginning to see that our present accepted so-called rational system of treating pathological conditions is indeed most irrational and empirical. Not much longer will it do to treat certain conditions with certain remedies, simply because our fathers did or even because we have observed in a previous case good results followed like treatment. We must now know the reason why.

There is no department of medicine (using the term medicine to include ours and all other specialties) that is so unscientific as that of therapeutics. Enough work has been done to show conclusively that all remedial agents, of whatever nature, that have any action upon the physical organism do so by means of the chemical relation which they bear to the organ, tissue, or pathological condition treated. They act by means of a certain selective chemical affinity. Certain organs and tissues under certain conditions attract and appropriate certain medicinal agents, when so placed as to be accessible. Scientists have for several years recognized what is known as the chemotactic property of cell life—the attracting and repelling force which one cell or set of cells exert toward one another. They look upon all organized life as a multiplication of cells, each having a specific function or functions, and each related to the other in a chemical way. The whole physical life process is a chemical one. The laws which govern the selection and preparation of food, digestion, assimilation and throwing off waste material are chemical. This is not only true of the whole organism we call man, but is equally true in the micro-organic world. Furthermore, it also holds true in the relation of the former to the latter. The baneful influences of micro-organic life upon higher organisms is exerted through chemical processes. The solution of animal cell tissue, plastic



exudate in wounds, and formation of pus are all chemical processes in which micro-organic life plays the important role.

To-night I want to present the thought of destroying this micro-organic life and their baneful influences in animal tissue, by chemical means.

The disassociation theory of Arrhenius, which has many able exponents, and which has been developed to a marvellous point in recent years, throws much light on this problem. The theory explained in a few words is this: When certain organic and inorganic acids or salts are carried into solution, either in the body or outside, they split up into ions—the negatively charged ones called anions, and the positive ones called kations. The action of such agents, therefore, depends upon the nature of its ions. This fact was brought out through a marvellously interesting series of experiments of Professor Jacques Loeb, formerly of the University of Chicago, but now of the University of California. No longer do we deal in the main with the molecules of which a substance is composed, but with the ions into which it breaks up. "We know, for example, that we can substitute at will sodium iodide for potassium iodide, in order to produce certain therapeutic effects. These salts are alike in that they both yield I-ions; they differ in that the former yield sodium ions and the latter potassium ions. Any similarity manifested in the therapeutic effects of these two salts is determined by the similarity of their iodine ions. But we know that the potassium iodide is much more depressant than the sodium salts. This is due to the direct poisonous effects of the potassium ions upon muscle and nerves, an effect not exhibited by sodium ions."\*

This same principle holds true regarding the germicidal action of drugs. They are efficient in proportion to the number of ions they contain. In mercury compounds, for example, it is not the amount of mercury in the salt, but the number of mercury ions that determines the efficiency. Example: A given per cent. solution of  $\text{HgCl}_2$  in alcohol; a solvent in which slight disassociation occurs is less potent than aqueous solutions.

What is needed now is an extended study of the exact action of various ions. We must learn what kind of ions produce a certain result. Then the chemist will have little difficulty in furnishing us with substances capable of disassociation into such ions as we need for a given purpose. This disassociation may often be brought about by first undergoing some change or changes within the tissue, and then going into solution and disassociation by means of the solvent in the tissues. With these ideas in mind, the chemists have been at work with no end of new remedies as a result, many of which are useless because they have not been sufficiently tested, but rushed into the market to precede some other fellow. A few are excellent, and to some of which I want

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\* Dr. Martin H. Fisher, *American Journal of Physiology*, 1901.

to call your attention. While these studies have been going on the physiologist has been at work, and shown us that germicides act upon the protoplasm of the proteid molecule in this chemical way. Proteids are the most important substances occurring in animal and vegetable organisms. None of the phenomena characteristic of life occur without their presence; they are invariably and constantly constituents of protoplasm. They are highly complex and uncrystallizable (for the most part) compounds of carbon hydrogen, oxygen, nitrogen and sulphur. The difference between the proteid molecule of higher forms of multi-cellular life and that of the purely vegetative forms has not yet been well made out.

An enormous amount of work is necessary to bring out the exact relation and the exact composition of each. The inorganic salts, especially those of the heavy metals, such as mercury, iron, copper, lead, zinc, etc., act by forming insoluble compounds with protoplasm of bacteria. They do not penetrate deeply into the cell, and their action is, therefore, uncertain and usually very slight.  $\text{HgCl}_2$  being the most potent of the group, because of its special toxic property, but its efficacy is greatly lessened if there are other proteids present, especially in the solutions which can be safely used on account of their toxicity.

The fatty acid series, the coal-tar derivatives, phenol, naphthol, resorcin, salol, thymol, guaiacol, cresol, etc., and to this group we may add beechwood creasote, salicylic acid, etc., also act by coagulating the protoplasm to a greater or less degree, but with these agents the coagulum is quite soluble, and so the agents, if kept in contact, penetrate deeper, and to that extent are fairly germicidal, especially to germs that have an easily permeable cell wall, and this is especially true of carbolic acid, which is more or less volatile.

It must be understood that none of these agents acts in a chemical way, but simply by coagulation, which is a molecular process. None of these agents enter into chemic combinations with the proteid. While the salts of the metals produce insoluble precipitates, and thus prevent greater penetration, so that their germicidal power depends upon the degree of precipitability of the different proteids. The aromatic series, to which belong the essential oils, can scarcely be called germicides. They act by simple irritation; in no sense chemic.

The oxidizers and reducers all tend to produce chemic changes in micro-organisms. They all act rapidly, and are rapidly decomposed by all organic matter. Hydrogen dioxide is perhaps the best known of this class of agents. The rapid effervescence is evidence of its rapid action. The failure to get good germicidal results from this class lies in the difficulty to bring each germ into contact with the agents long enough to be destroyed. This difficulty is increased a hundred-fold when used within the tissues of



the body, for the reason that they are equally active towards the organic matter of the tissues.

There is a fact which is often lost sight of in considering this subject which is of vast importance, and that is this: In application of germicides to suppurations we must consider the tissue in which the suppurative process is going on. Nearly all these old agents act more forcefully against the cells of the tissue than against the micro-organisms therein.

Many, and, indeed, most, germicides are so coagulant, or otherwise destructive of the cell tissue, as to make their use in concentrated form dangerous, and, indeed, most of them possess general toxic or other deleterious properties after absorption which often endanger life. Therefore, in the practical application of germicides, we must always consider:

1. Action on the system.
2. Action on the tissues of the part.
3. Action on the germs in the part.

And this brings us to two important points for consideration, namely, (1) the stimulating influence that certain agents exert toward the normal cell elements of the part; (2) the antiseptic influence that certain agents exert upon the whole organism, through the medium of the blood stream.

When suppurative micro-organisms get into the injured tissue of a part, by any means, there occur some interesting things. The injured tissue will soon be seen to be literally filled with reparative cells, cells which are carrying the necessary elements of repair to the injury, and carrying away the useless, discarded elements to be excreted and thrown off from the body. Mixed into this veritable bee-hive will be seen these micro-organisms, and if conditions are favorable they will grow and multiply rapidly. A "battle royal" occurs between these invading enemies and the reparative cells; sometimes one is victorious and sometimes the other, depending upon (1) the condition and nature of the micro-organisms; (2) the condition of the cells of the part; (3) the condition of the general system. There is some interesting detail in this connection, but time forbids further elucidation. It must however, be clear to everyone, and this is the point I am trying to bring out, that favorable resolution may sometimes be brought about by directing our attention to any or all of these three things: (1) We may destroy or inhibit the growth of the micro-organisms direct. (2) We may stimulate the cells of the part to increased activity, and they in turn destroy, break down, these enemies. (3) We may act upon the whole organism with reference to stimulated circulation, assimilation and excretion, or increase the blood antiseptics, any one or all of which, within certain limitations, would be equally potent so far as results are concerned. This explains why we have long been using certain agents which are not, strictly speaking, germicides, with good results, iodoform for example. I want to emphasize, if I may, the need of attention

to all three of these things, if we would be very successful in treating serious suppurations. In every serious infection we should always look to the nature of the micro-organism infecting; the condition of tissues of the part; and the condition of the whole system, with reference to nutrition, including excretion and circulation, and also the condition of the nervous system, before we determine what agent or agents we shall use.

The methods employed for determining the germicidal power of agents are many, all of which are imperfect, and whenever you read a statement of the germicidal power of any agent you must know the nature of the germs used in the test; how they were previously grown; how they were tested; in what media they were grown before and after, and what was the method of subjecting them to the agent, before you can have any idea of its value. All tests only prove so far as these things are known, and do not prove anything beyond that; because an agent proves germicidal toward a particular germ or mixture of germs, under certain conditions, using any method, only proves so far as that series, but does not prove anything so far as other germs or methods of using are concerned; therefore *all* experimental tests are only relatively valuable, and only useful for comparison, and beyond that prove nothing.

The literature of the medical and dental professions is full of conflicting statements regarding the potency of various agents, classed as germicides, the reasons for which are explained by the foregoing statement. In most cases I have succeeded in duplicating their experiments when the above conditions have all been stated. In not a few instances I have clearly demonstrated their faulty technique. I have tried almost every published method at some time or other in the last five years, and have concluded that the method suggested by myself in 1899 is open to the least objection, and yields results most nearly uniform, and yet I do not wish to convey the idea that this method will in any way accurately tell what will occur when applied to actual practice in treating suppurations in the living tissue; but when these results are applied to such treatment, and there studied and modified to meet conditions, good results will follow. Until the chemistry of the proteid molecule under its various pathological changes is more clearly made out this is the best we can do. Pharmacology, the study of the action of remedies when practically applied, must at present be our main reliance. Science and experience must go hand in hand.

In making experimental tests, it is essential that the agent used be pure and reliable; that the germs be exposed to it in equal numbers under the same conditions; that they be at their maximum height of virulency, should be pure cultures, and that they be cultivated in media and temperature most favorable to their growth. In the experiments from which the following tables were made up the following method



was used : Organisms were grown in bouillon made from lean beef (not beef extract) in the usual manner, and neutralized with sodium hydrate (not sodium bicarbonate.) In series D and E it was made slightly alkaline. The germs were grown and distributed throughout the media in equal numbers, as shown by microscopic examination. The germs were transferred in loopfuls to small squares (a centimeter) of filter paper, which was previously sterilized and kept in a petri dish; there they were allowed to dry; then on to this was carried by means of the loop sufficient of the medicament to completely cover the filter paper, and left for various lengths of time, when each square was washed, so as to remove the medicament, and planted in fresh tubes of culture media, and placed in an incubator, at 37 deg. Centigrade. Readings were taken from time to time for a week. The germicidal power of the medicaments is here determined by the *time* necessary to expose germs to it, and, as you will see, a great difference appears. You will notice that some agents were used in full strength and others in per cent. solutions, according as they could be used in practice.

In all of these series of experiments I began by exposing the germ to the medicament five minutes, and worked each way from that point, according as growth appeared or not. When doubt existed, inoculations were made in fresh media and in animals—guinea pigs and young rabbits mostly.

In these tables only final results are given. They are made up after many repetitions :

#### SERIES D.

Germ used, staphylococcus pyogenes aureus. Grown and plated out from abscess pus :

Agent,	Per Cent. Solution.	Time Required, Minutes.
Oil cassia .....	Full strength .....	55
Oil cinnamon .....	Full strength .....	55
Oil cloves .....	Full strength .....	55
Oil cajeput .....	Full strength .....	50
Oil eucalyptus .....	Full strength .....	60
Oil wintergreen .....	Full strength .....	60
Oil peppermint .....	Full strength .....	55
Oil cade .....	Full strength .....	50
Oil birch tar .....	Full strength .....	30
Oil pennyroyal .....	Full strength .....	42
Carbolic acid .....	95 per cent. ....	30
Creasote, B. W.....	Full strength .....	40
Campho-phenique .....	Full strength .....	40
Guaiacol .....	Full strength .....	40

Agent.	Per Cent. Solution.	Time Required, Minutes.
Thymol .....	Alkaline, Saturate solution .....	30
Thiocol .....	Alcoholic, Saturate solution .....	30
Aspirin .....	Alcoholic, 9 per cent. solution...	30
Bichloride mercury .....	1-1,000 .....	20
Phecene .....	Sat. solution .....	12
Creolin .....	Full strength .....	3
Trikresol .....	Full strength .....	5
Sublamine .....	1 in 250 .....	5
Kresamin .....	Full strength .....	5
Phenol sulphonic .....	Full strength .....	5
Formalin .....	Full strength .....	3
Chinosol .....	10 per cent. solution .....	1

### SERIES E.

Germ, streptococcus pyogenes in virulent form, from periosteal abscess :

Agent.	Per Cent. Solution.	Time Required, Minutes.
Oil cassia .....	Full strength .....	60
Oil cinnamon .....	Full strength .....	60
Oil cloves .....	Full strength .....	60
Oil cajeput .....	Full strength .....	55
Oil eucalyptus .....	Full strength .....	60
Oil wintergreen.....	Full strength .....	60
Oil peppermint.....	Full strength .....	55
Oil cade .....	Full strength .....	40
Oil birch tar.....	Full strength .....	30
Oil pennyroyal.....	Full strength .....	35
Carbolic acid.....	95 per cent. ....	30
Creasote, B. W.....	Full strength .....	40
Campho-phenique.....	Full strength .....	60
Thymol .....	Alkaline, Sat. sol. ....	40
Thiocol .....	Alcoholic, Sat. sol. ....	32
Aspirin .....	Alcoholic, 9 per cent. sol.....	22
Mercury bichloride.....	1 in 1,000 .....	15
Phecene .....	Sat. solution .....	10
Creolin .....	Full strength .....	5
Trikresol .....	Full strength .....	5
Sublamine .....	1 in 250 .....	5
Kresamin .....	Full strength .....	5
Formalin .....	Full strength .....	3
Chinosol .....	10 per cent.....	1



## SERIES F.

Germ, *Proteus bacillus*.

Agent.	Per Cent. Solution.	Time Required, Minutes.
Oil cassia .....	Full strength .....	55
Oil cinnamon .....	Full strength .....	40
Oil cloves .....	Full strength .....	45
Oil cajeput .....	Full strength .....	50
Oil eucalyptus .....	Full strength .....	50
Oil wintergreen .....	Full strength .....	55
Oil peppermint .....	Full strength .....	50
Oil cade .....	Full strength .....	40
Oil birch tar .....	Full strength .....	30
Carbolic acid .....	95 per cent. ....	20
Creasote, B. W. ....	Full strength .....	15
Thymol .....	Liquor potass., Sat. solution....	20
Thiocol .....	Alcoholic, Sat. solution .....	10
Aspirin .....	Alcoholic, 9 per cent. solution....	18
Naphtha eucalyptus .....	Alcoholic, Sat. solution .....	10
Chinosol .....	10 per cent. solution .....	1
Mercury bichloride .....	1-1,000 .....	22
Phecene .....	Sat. solution .....	10
Creolin .....	Full strength .....	8
Trikresol .....	Full strength .....	5
Formalin .....	Full strength .....	1
Tribromo-phenol .....	Alcoholic, Sat. solution .....	8
Trichlorphenol .....	Alcoholic, Sat. solution .....	8

## SERIES G.

Germ used, mixed pus culture.

Agent.	Per Cent. Solution.	Time Required, Minutes.
Oil cassia .....	Full strength .....	40
Oil cinnamon .....	Full strength .....	40
Oil cloves .....	Full strength .....	40
Oil cajeput .....	Full strength .....	45
Oil eucalyptus .....	Full strength .....	40
Oil wintergreen .....	Full strength .....	60
Oil peppermint .....	Full strength .....	50
Oil cade .....	Full strength .....	25
Oil birch tar .....	Full strength .....	20
Oil pennyroyal .....	Full strength .....	45
Carbolic acid .....	Full strength .....	30
Creasote, B. W. ....	Full strength .....	30
Campho-phenique .....	Full strength .....	40
Mercury bichloride .....	1-1,000 .....	25
Creolin .....	Full strength .....	5

Agent.	Per Cent, Solution.	Time Required, Minutes.
Trikresol .....	Full strength .....	5
Sublamine .....	1 in 250 .....	3
Kresamin .....	Full strength .....	5
Formalin .....	Full strength .....	2
Chinosol .....	10 per cent. ....	1
Phenol sulphonic .....	Full strength .....	5
Tribromo-phenol .....	Alcoholic, Sat. solution .....	10
Trichlorphenol .....	Alcoholic, Sat. solution .....	8

## SERIES H.

*Bacillus pyocyaneus.* Isolated from pus.

Agent.	Per Cent. Solution.	Time Required, Minutes.
Oil cassia .....	Full strength .....	38
Oil wintergreen .....	Full strength .....	45
Oil cinnamon .....	Full strength .....	40
Oil cloves .....	Full strength .....	40
Oil cajeput .....	Full strength .....	45
Oil eucalyptus .....	Full strength .....	40
Oil wintergreen .....	Full strength .....	40
Oil peppermint.....	Full strength .....	40
Oil pennyroyal.....	Full strength .....	40
Carbolic acid.....	95 per cent., full strength .....	10
Creasote, B. W.....	Full strength .....	20
Oil sassafras .....	Full strength .....	40
Creolin .....	Full strength .....	5
Trikresol .....	Full strength .....	2
Formalin .....	Full strength .....	1
Sublamine .....	1 in 250 .....	2
Bichloride of mercury ...	1-1,000 .....	5
Kresamin .....	Full strength .....	3
Phenol sulphonic .....	Full strength .....	2
Chinosol .....	10 per cent. solution .....	1
Campho-phenique .....	Full strength .....	10
Eugenol .....	Full strength .....	30
Permanganate of potash, 10 per cent. strength.....		30

## SERIES I.

Germ, *bacillus prodigiosus*.

Agent.	Per Cent. Solution.	Time Required, Minutes.
Oil cassia .....	Full strength .....	35
Oil cinnamon .....	Full strength .....	35
Oil cloves .....	Full strength .....	35



Agent.	Per Cent. Solution.	Time Required, Minutes.
Eugenol .....	Full strength .....	32
Oil cajeput .....	Full strength .....	40
Oil eucalyptus .....	Full strength .....	40
Oil wintergreen .....	Full strength .....	40
Oil peppermint.....	Full strength .....	30
Oil pennyroyal.....	Full strength .....	35
Carbolic acid .....	Full strength .....	15
Creosote .....	Full strength .....	18
Trikresol .....	Full strength .....	2
Kresamin .....	Full strength .....	2
Bichloride of Mercury ..	1-1,000 .....	5
Sublamine .....	1-500 .....	2
Permanganate of potash, 10 per cent. strength.....		25
Phenol sulphonic .....	Full strength .....	5
Chinosol .....	10 per cent. ....	1

These tables only show the time required to completely destroy all life. Nearly all agents showed marked restraint in less time. Many of the germs exposed to the essential oils fifteen and indeed thirty minutes, grew as quickly and as luxuriantly as the controller.

You will note the excellent showing made by the following agents: Formalin, sublamine, phenol-sulphonic acid, trikresol, creolin, kresamin, phecene, chinosol.

The application of germicides as such to treatment of oral diseases is quite limited; it is only in violent, acute, chronic, necrotic suppurations; in syphilitic ulcers, eczema, etc., and in such case the selection of the particular agent will be determined by the conditions present. They are also of value as hand and instrument disinfectors.

Formalin is a colorless liquid, resembling water in appearance, and is a 40 per cent. solution of formaldehyde gas. It is probably the most potent germicide that can be used. Its dental uses are limited, because of its extreme irritating property. I have used it in old chronic abscesses, but in nearly every instance severe pain and swelling resulted, which has caused me to abandon it except in weak dilutions in such agents as creasote.

Paraform, a new solid polymer, has recently been recommended. There is a class of cases where it is of value, if used with care. I refer to old blind abscesses on the roots of teeth, containing small tortuous canals. This agent readily gives up formaldehyde gas, which is very penetrating. It should only be placed in the large entrance to the pulp chamber, and not down in the root canals, and even then it stirs up some irritation. In coming to this conclusion, I have lost some teeth from its use, but if you are careful and use it as stated you will find it of excellent value. Recently some practitioners have recommended it as a

component part of root fillings. I am somewhat sceptical of the result. In old chronic cases, where there is little or no discharge of pus, but instead a thin ichorous fluid comes weeping down into the canal, cases that are not causing any great amount of pain, but sore and constantly annoying, in all such cases I get good results from this drug. It always increases the soreness and inflammation, which soon terminates in resolution. Perhaps the most valuable use we can make of this agent is as a disinfectant for foul rooms, for operating rooms, where serious surgical cases are attended to. For instruments, especially those used on syphilitic cases.

Paraform has recently been put upon the market in tablet form, especially designed for use in Schering's sterilizer. It is both effective and convenient.

Bichloride of mercury as a germicide was first brought to the attention of the medical profession by Koch, since which time its use has become almost universal. It is a potent germicide toward all germs that have a very permeable cell wall. It is very corrosive, producing insoluble coagulum, and therefore limiting its power. Its most serious objections are its irritant and toxic properties. In dental practice its use has been quite generally abandoned, except as a hand disinfectant, and on gauze for packing suppurating antrum; also in syphilitic cases.

Sublamine. Ethylenediamine, sulphate of mercury. A new agent, recommended as a substitute for bichloride of mercury.

Ethylenediamine is an organic base, with a chemical formula of  $\text{CH}_2\text{—NH}_2$



It is a clear, colorless liquid of alkaline reaction, and gives off the odor of ammonia. This substance is used in connection with several coagulant germicides, for the purpose of reducing their irritant property and increasing their penetrative power. Sublamine comes to us in solid form, and is freely soluble in water. I have been using it in the strength of 1 in 500, and find it but very slightly irritating. It is a non-coagulant, and will penetrate much more deeply than bichloride. In all the tests it has proven much more efficacious than bichloride, and certainly is much more agreeable to use. I can most heartily recommend it for sterilizing hands, washing indolent ulcers, flushing the antrum, for washing through chronic abscesses, sterilizing the skin before operations. For all these purposes I have been using it in my private practice, as well as in the public infirmary. It is a chemical germicide, carrying pus into solution.

Phenol sulphonic acid is a light reddish-colored liquid, made by combining equal parts of sulphuric and carbolic acid. It is not so coagulant or irritating as either of the substances from which it is made. It can be used in full strength for burning through old



chronic abscesses, and is especially recommended where cases are of long-standing, with more or less of bone absorption around the apex of the root. It is valuable to enlarge root canals, and to burn out the socket after a badly abscessed tooth is removed. Of course, it must always be used with caution. A 50 per cent. solution is especially recommended to aid in the exfoliation of necrosed bone; it will also disintegrate and dissolve small pieces of tooth and necrosed bone that may be left after burring or curetting about the jaws. I use it on gauze for the first packing after such operations, especially in the antrum. Weaker solutions may be used to wash out after surgical operations on the jaws. I have come to look upon it as one of my most valuable agents.

Trikresol; another product from Schering's chemical laboratory. Its composition is as follows: Ortho-cresol, 35 per cent.; meta-cresol, 40 per cent., and para-cresol, 40 per cent. It is a clear liquid of pungent odor, resembling phenol; turns slightly red on exposure to strong sunlight. It is soluble in 2 per cent. water, but freely in alcohol and oils. It is a splendid germicide, as shown by these experiments, and an agreeable preparation to use. I have been using it about four years, and now find I am using it in almost every condition where I formerly used carbolic acid or creasote. It is not so escharotic as carbolic acid; will penetrate much deeper into vegetable cells, and will destroy spores. Two per cent. solution is antiseptic. I recommend it to burn out old abscesses; as a dressing in root canals in acute apical pericementitis; in putrescent pulp; to relieve odontalgia, applied warm or almost hot. It penetrates the dentine as readily as the essential oils, but does not discolor it. A little (not an excess) is useful as a dressing after pulps are extirpated, before filling root canals. To keep scalers and such instruments sterile while using, I keep them in a 10 per cent. solution in alcohol and water. It is an excellent agent, used full strength, as a first treatment in pus pockets about the roots of teeth.

Kresamin is the name given to a combination of ethylenediamine and trikresol, containing equal parts of each. It is a reddish-colored, phenol-like liquid; has an agreeable odor, and is very slightly irritant. It is practically non-caustic, and but feebly coagulant. It is powerfully germicidal, equal to 1 in 500 bichloride of mercury. I have been using it lately in the clinic, with most flattering results. I am satisfied if used in acute or recent chronic abscesses it will be of value. I wash through such abscesses freely with it. I have passed some around among a few of my dental friends, and they are all delighted with the results they are getting with it. It is freely soluble, and may be used as an antiseptic in dilute solutions. It is a chemical disinfectant. When brought in contact with thick pus, kresamin seems to immediately dissolve it, and turn it a dark brown color. In apical pericementitis from any cause, it seems to be of great value; also applied to inflamed pulps it has an immediate quieting influence.

In all inflammations accompanied with pus formation I am sure of its efficacy.

Chinosol has a chemical formula of  $C_9H_6N \cdot KSO_4$ , and is prepared by the action of sulphate of potassium on chinoline, a basic coal tar derivative. It occurs in the form of a crystalline yellow powder, possessing a very slight odor, and pungent coal tar taste. It is freely soluble in water, but insoluble in ether or alcohol. It is a chemical germicide. When brought in contact with pus in the slightly alkaline fluid of the tissues, it is readily broken up into oxychlorine, and it is this that is so powerfully germicidal. So far as my knowledge goes, it is the most potent germicide, so far as pus germs are concerned, of any agent at our command. I began using and recommending it for the eradication of pus in 1893, since which time it is my main standby. It has two slight objections, namely, it corrodes steel instruments (not others), and has a slight tendency to darken teeth; such discoloration is very readily removed with any oxygen bleacher. Being almost devoid of odor, it is not a very good deodorant for foul-smelling dentine, but as a pus-destroyer, it certainly has no equal.

It is practically non-irritating; is wholly non-coagulant, and non-caustic. I used it in 2 per cent. solution for washing out bad pus pockets, abscesses in antrum, and alveolus. I use a 10 per cent. solution in chronic, foul, violent abscesses, and all other violent suppurations. It is used only for the purpose of getting rid of pus. When you need to burn out necrotic tissue, it is not recommended. It is wholly non-toxic, and can be used *ad libitum* in these solutions. Injected into a forming abscess, boil or carbuncle, it will immediately get rid of the pus. In any case of violent pus infection, where there is danger of serious results, this is the most efficient agent, especially in streptococcic infection which is active you can use no better drug. Chinosol gauze, absorbent cotton, and soap may be had in the market. If you have an abscessed antrum, where pus is rapidly being formed, try chinosol irrigation, and chinosol gauze pack to control it, and you will be delighted.

I have shown you these cultures and tests, and called your special attention to these agents, not because they are the only good ones, but rather because I have had the most practical experience with them. I have used all of them on many hundred cases in the infirmary, and have the written history of treatments to corroborate all I have said. Some of you I know have tried some or all of these agents; others have not tried any. I simply want to make a plea for their value over the remedies you are using. Won't you try them?

I wish to extend grateful acknowledgment to Dr. Martin H. Fisher, of the University of Chicago; Professor Jacques Loeb, of the University of California, and Professor Frederick G. Novy, of the University of Michigan, for valuable suggestions, and to Dr. E. S. Willard, of the North-western University, for assistance in



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BLEACHING ENAMEL.

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Peroxide of hydrogen and peroxide of sodium when heated give off oxygen in great quantities. This nascent oxygen at the moment when it leaves the compound is most caustic, and, therefore, if we can liberate this gas directly on a tooth, we shall be able to remove any organic stain. Either pyrozone, which is 25 per cent. solution of peroxide of hydrogen, or sodium dioxide can be used. These two materials seem equally powerful, but they are somewhat different in their actions, and, therefore, would better be described separately.

If the stained tooth is pulpless and the apical ends of the canals have been tightly sealed, the treatment should be as follows: Apply the rubber dam and tie one if not two ligatures around the neck, so that leakage is impossible. Let the rubber dam go slightly over the nostrils of the patient to prevent the fumes of the nascent oxygen from irritating the air passages. Oil should be rubbed on the hands of the operator and on the face of the patient. The tooth should be dried internally and externally. Cotton soaked in pyrozone should be packed in the canal, and a hot ball burnisher, such as is used in plastic work, should be placed against the cotton, so that the steam of the nascent oxygen will be driven through the tooth substance. After the cotton becomes dry, it should be removed, and the tooth heated again internally with hot air, when the process described above can be repeated several times. Finally cotton soaked in pyrozone should be sealed in the

canal with hard gutta percha, so that any gas that is given off, may by pressure, be driven throughout the dental tubules.

Then we are ready for the second stage of the process. The enamel should be thoroughly dried with hot air blasts and heated instruments until the patient feels the heat of the tooth in the gum. This makes the oxygen within the tooth canal exert great pressure; then a piece of cotton soaked in pyrozone, should be placed on the enamel, and a broad, hot instrument held against it, so that the steam shall be driven in from the outside. This should be continued until the cotton becomes dry, when the enamel should be ironed with a highly heated ball burnisher. This drives out the pyrozone that the enamel has soaked up, and in drying it out, liberates the nascent oxygen within the enamel substance. The effect of this last-mentioned ironing is most marked and the stains can be seen perceptibly to whiten. This process can be repeated in its various stages as often as desirable, and when the patient leaves, fresh pyrozone should be sealed in the canal with gutta percha, in order that the bleaching process may continue until the next visit. If, finally, there is a slight stain that the nascent oxygen will not remove, a strong solution of oxalic acid should be used in the same way. The oxalic acid is not only a powerful oxidizer of organic material, but will also change any iron stain to a colorless oxalate.

What has been said about the use of pyrozone, with a few cautions, applies equally well to peroxide of sodium, as both bleach primarily by setting free nascent oxygen. The peroxide of sodium is most valuable where oil in the tooth is to be saponified, and, therefore, it will sometimes succeed where pyrozone fails; however, we must remember that when peroxide of sodium touches the soft tissues, it makes a deep burn, which pyrozone would not, and, therefore, great care should always be used that the sodium dioxide does not escape from the protection of the rubber dam. When this compound is placed in hot water, the oxygen is given off so rapidly that a distinct puff is heard, but when it is melted on ice, a thick paste of the undischarged sodium dioxide can be obtained which when placed upon the dried enamel, and heated with a hot instrument will safely give off a tremendous quantity of nascent oxygen. The oxygen, as previously stated, will bleach the enamel of a tooth where the pulp is alive. When peroxide of sodium has been used it should be carefully washed off with water and neutralized with a weak acid. Before the rubber dam is removed, always be sure that none is left to burn the mouth. It is also for the same reason, dangerous to seal it up in a tooth unless the utmost precautions are taken against its escape.—*Joseph Head.*



## Review

### "SUCCESS IN DENTAL PRACTICE."

BY C. N. JOHNSON, M.A., D.D.S., L.D.S.

Reviewed by C. E. Pearson, D.D.S., Toronto.

"Success in Dental Practice," is the title of the latest product of the versatile mind and flowing quill of C. N. Johnson, D.D.S., of Chicago. Dr. Johnson is a Canadian, and to say that we are proud of him and his work is a very simple way of expressing great admiration.

The volume, seven by five inches, is a modest little book of one hundred and sixty pages, and deserving of praise, not only for what it is, but also for what it is not. It is replete with a rare common sense. It is not labelled "confidential." It does not begin each chapter with a time-honored quotation, nor weary the reader by any attempt to impress the writer's familiarity with the epigrams of Lincoln or the essays of Emerson. There is no illusion to Omar Khayyum or to Socrates, and not so much as a suggestion that the author is familiar with the works of any bard, and is himself graced by a touch of the Muse. Because it does not contain these things it is valuable. It is a *book*, because it is made by a real book-maker—a man who has thoughts worth writing and who writes with a style logical, though florid, and truthful, dealing with things which have brought him success, and pointing out the indiscretions which cause failure.

It is particularly adapted to meet the innumerable questions asked by the young members of a profession. It is a book which the busy man will find worth reading; but yet this work, from the hand of a genius, is not beyond criticism in a few minor respects.

Following the natural sequence of events, a dentist must choose a location before he is able to arrange and furnish an office, and, personally, I think the third chapter on "location" should be the first chapter. The opening paragraph of this chapter is a better introduction to the whole volume, and the following paragraphs place before the recent graduate a modest but true picture of his relationship to his friends and to the public. In fact, this complete chapter leads up to the opening sentence of the first chapter, and is an introduction to the "Arrangement of an Office."

The next chapter on "Winning Patronage" is teeming with choice bits of common sense; indeed, it is so overflowing that they must find an outlet in this review. He begins thus:

"*Advertising.*—After an office is fitted up, the next consideration is to secure patients. This is a problem which has taxed

the minds of very many in the profession, and yet it is really a simple matter if approached in the right way. The most fatal mistake a young man can make is to attempt to gain a practice by newspaper advertising. This statement is made in the present connection entirely aside from any consideration of the ethical phase of the question. Even if it were perfectly ethical to resort to circulars, or hand-bills, or posters, or display advertisements in the public prints, it would still remain a bad business policy in a profession like dentistry. While there are always exceptions to every rule, the generality of patients who come to a dentist as the result of this kind of advertising are not of the class which make good patronage for any self-respecting young man. Even if newspaper advertising *per se* were in no wise objectionable, the depths to which it has been dragged by irresponsible imposters would tend to brand it as a doubtful expedient for honest men to traffic with. The stigma of the "dental parlor" is a shadow which no young man can afford to have trailing after him through life. Unless there be present in the individual himself those qualities which draw and hold people to him by the force of his own personality, newspaper advertising will prove at best only a temporary advantage, to be immediately lost the moment the advertising ceases; while if the young man possesses those qualities, he assuredly has no need of the newspaper to aid him. Few young men start out with the idea of continuing throughout their entire professional life the habit of paying part of their income to the newspaper for the *purpose of bringing in patronage*. (The italics are mine.) Their plan usually is to utilize this means for a time till they are well established, and then they fondly hope to be independent of such methods and able to pilot their own bark. The fallacy of this has been demonstrated repeatedly. It is the rarest possible exception to find any young man who has resorted to this kind of advertising ever to attain to any prominence in the profession, or to succeed permanently in a financial way. Even laying aside the question of respect on the part of professional associates, the history of professional men generally will amply prove that there is no tangible or lasting success to be had by this plan. But granted that there were, this question of respect cannot be laid aside. Men may talk loftily and loudly about not caring what the profession thinks of them so long as they make the money; but sooner or later, money or no money, there comes to the heart of every man an overwhelming desire to be thought well of by his fellow. He may hide it for a time behind the mask of an artificial complacency, but it will not down. It is human nature. If there is a man who is devoid of this desire, he is far more to be pitied than envied or emulated, and in that man there is not the element of true happiness.

"A revelation of this character came to the present writer while he was yet a young man starting out in practice. It so befell that he chanced to meet and talk with an elderly practi-



tioner in another profession who had almost a national reputation for quackery. He was quite generally accounted to be the chiefest exponent of quack methods of his time, and was considered a prince in his way and one who was brilliantly successful along those lines. It was supposed that he had grown wealthy by his methods, and that he cordially despised the 'so-called ethics' of professional life. Said he to me: 'I suppose that you intend to practise dentistry ethically, do you?' I thought I detected the semblance of a sneer in his remark, but I had the courage to say to him that such had been my intention from my student days, and that I saw no reason for changing my views. He looked at me a moment with a queer expression, which soon took on a serious turn, and then broke out: 'My dear boy, whatever you do, stick to that. It is the only certain road to success in a profession. I should hate to see a young man like you make the deplorable mistake in life that I have made —only he did not use the word 'deplorable.' And then he painted such a picture of what his life really was, in contra-distinction to what the world thought it was and what he wished it were, that I never have escaped the impression his recital made upon me.

"The inner history of every man who has followed quack methods for building up a practice will disclose the fact that there is something fundamentally wrong with the method. A man who always remains a quack eventually fails in the respect of his fellow-men as well as his fellow-practitioners, and he who starts out as a quack with the ultimate intention of reforming and becoming ethical as soon as his practice is established will find that the stigma of his early methods will cling to him long after he has discarded them, and will crop out and embarrass him throughout his entire professional career.

"*Essentials to Success.*—If it be true, then, that quackery is a failure as well as a wrong, by what means shall a young man draw a patronage to himself in such a way that he may be both successful and respected? I have stated that this is a simple matter, and so it is; but the requirements for carrying it out are somewhat exacting and cannot—must not—be ignored."

The author's illustration of the fallacy of advertising is not more striking and instructive than is the one for "Morals," by the saloon-keeper, or the one of tact and "Knowledge of Human Nature," in which the brusque man of business is handled to his own taste. Again:

"*Punctuality and System.*—The virtue of punctuality and system must also be emphasized in considering the requisites necessary for success in professional life. The man who conducts his practice in a hap-hazard way will have hap-hazard results, and such a man will usually be the first to wonder why he does not succeed. There is a reason for everything in this world; and if a man fails in life, there is some reason for it. It is only for the one who fails, to search out the cause of his failure, and then resolutely set himself to work to correct the fault, no matter

at what cost of determination and perseverance. This last statement would seem to imply that the causes of a man's failure must necessarily be found connected with the man himself, and this is not merely an assumption, but a fundamental and most profound fact."

Unfortunately for the unfortunate man who fails, he may not be gifted with that keen introspective faculty which shows him his fault, and one may obey the dictates of this chapter on the essentials of success to the very letter, and in the end find himself very much in the position of the rich young man, and be said: "'All these things have I kept from my youth up,' yet I am not a Johnson."

"Winning Patronage." What is the meaning these two words convey? To patronize is "to favor with one's custom or business" (Standard Dictionary). The dental profession is not a business, and we have no dealings with customers. More than that, it is not the part of a professional gentleman to cater for favors from his friends, or the public. Is there any real gentleman who wishes to build a practice on the *favor* of the community in which he lives? Is there any man so poor in pocket and so depraved in mind that he does not resent the insinuation that his practice is based upon the pity of his townspeople, rather than upon his ability to perform valuable services? Are dentists so poor a body of men that the public must be a father or guardian to them? Do we consider ourselves an excrescence on the body public, to be fostered with an assumption of condescension as a necessary evil? I am sure the author does not think so, yet he uses these words: "patron," "patronage," "patronize," all through the work. He uses it in the following quotation from the very admirable chapter on "Extending Acquaintances": "If a young man draws people to him by virtue of his inherent qualities of sturdy manhood and uniform good-will in society, they will naturally inquire into his calling and the next step to that of their *patronage* is easy." Why not leave out "to that of their patronage" and say "the next step is easy"?

In the chapter on "Appointments and Sitzings" (page 103), he used the word correctly when speaking of notifying patients of appointment. Thus:

"Of course in no instance should such a notice be sent to a patient without a previous understanding in the matter, lest there arise a suspicion in the mind of the patient that the dentist is *soliciting patronage*. To prove to patients that it is the regular custom of the practitioner to send these notices, it is well to have notification cards printed ready for mailing at the appointed time." From this use of the word one would suppose the author disliked the idea of aid or help. And so he should.

And, again (page 148), in speaking of the relation of the dealer and the dentist, he says: "They (meaning the dentists) seem to imagine that because the dealers make their liv-



ing on the *patronage of dentists* (the italics are mine) the latter are thereby privileged to take all sorts of liberties and ask for all sorts of favors." If it is "patronage" the dentist gives to the dealer, and if it is the same "patronage" the patient gives the dentist, they would be equally justified, and "privileged to take all sorts of liberties and ask for all sorts of favors." No, the dentist does not want "patrons," but patients. He should not look toward "winning patronage," but toward *making a reputation*. He does not want to be bolstered up; he wants to stand up. He has something to give the public, and the public want what he has. What he gives is a professional service for which he requires a fee. They are not customers, neither is it a business transaction performed as a favor.

The author is careless in the use of this word. Incidentally, I wish to call the attention of the author to a printer's error on page 61. The word "sanctimonious" has one letter left out.

It is a difficult matter to praise well without seeming to flatter. Words flow easily—most easily when the feeling is skin deep—but this chapter on "Extending Acquaintance" is so full of the absolute truth of things—things which are greater than success in dentistry; things which make success of manhood; things which make a broad-minded, honorable and respected citizen—that I am at a loss to praise, other than by quoting in full:

"When a young man locates in a place it becomes necessary to extend his acquaintance as widely as possible along legitimate lines in order to rapidly gain patronage. If he goes a stranger into a town, or even into a city, it is always desirable to take letters of introduction to the influential people of the place. The first move he makes is very important, particularly with regard to the character of the people he meets. He should aim to cultivate good society at the outset, not necessarily—and often not preferably—the swell set, but people of good moral and business standing.

*Letters of Introduction.*—In presenting a letter of introduction the young man should exercise great care not to prejudice his case by consuming too much of the recipient's time. Usually men or women worth meeting have many demands on their time, and if a young man approaches such an individual without due regard for this fact, he is quite likely to prove a bore. Let him present his letters in a business-like way, stating that he is desirous of making their acquaintance, but that he does not wish to waste their time. He can readily gather from the nature of the answer he receives just how much leeway he has in this particular, and can govern himself accordingly. Usually people of the right sort are glad to welcome newcomers to a town; and if the young man makes a favorable impression at the outset, it is not a difficult matter to extend his acquaintance.

After he has met a dozen people in the place, his success from that time forward depends on himself. He should beware of boasting too much about what he proposes to accomplish in the way of practice, particularly if he goes to a place where there is already a dentist, but he must at all times preserve an air of quiet confidence that he will succeed. The unobtrusive self-assurance that he has within him the certain elements of success, the constant conviction that he must win, no matter what obstacles are placed in his path, this of itself is a potent factor in carrying a young man to success. No man ever yet accomplished great things through the medium of despondency. Let the young man place the most promising construction on his prospects, but let him do it in such a way as not to give offence. A vulgar display of conceit always engenders distrust and reacts against the individual, but an attitude of calm assurance backed up by steady application creates confidence and more than half wins the battle.

*"The First Patient.*—The first patient a young man puts in his chair for professional services should mark an event in his life. No matter how humble in position or circumstances this patient may be, the dentist should seek to make a favorable impression. In fact, in the management of each individual who applies to him the aim should invariably be to so treat the patient that it will result in the sending of other patients. The recommendation of an individual who has been in the hands of a dentist counts for more than any other kind of advertising, and it has the advantage that this is legitimate advertising. Show each patient that you have a vital interest in his or her welfare and that your relationship with the public is different from that of a tradesman. Advise the patient always for what you believe to be the best, irrespective of your own financial relation to the matter, and when the fact that you do this becomes known, as it surely must, it will prove a strong tie to bind people to you.

"The dentist should early seek to establish a community of interest between the patient and himself, so that their relationship becomes something more than a mere barter of money for professional services. He who develops an abiding friendship between himself and those who come to his office will never lack for patients, and some of the most cherished associations of a lifetime may be made in this way.

*"Social Functions.*—Extending acquaintance through the medium of social functions is a perfectly proper thing to do, though the young man should have a care not to deport himself in such a way as to raise the suspicion that he is trying to advertise his profession. In fact, there is nothing more lacking in good form than the habit of talking shop at a social gathering. Aim to be cordial and pleasant with everybody, so that people are attracted to you by virtue of your personality. There is no other quality so winning in society as that of invariably being a per-



fect gentleman, and this is something a young man can acquire by a close study of what is considered good form. The prime requisite for success in society is a never-failing and genuine courtesy. This will win where mere flashiness, either of apparel or wit, will fall short of permanent success.

"If a young man draws people to him by virtue of his inherent qualities of sturdy manhood and uniform good-will in society, they will naturally inquire into his calling, and the next step to that of their patronage is easy. But there is one feature of this that requires careful consideration. It is better always that people should not become personally too friendly or familiar with the dentist, for the reason that in the proper conduct of a practice there are always certain requirements which the dentist must demand of the patient and to which the patient if approached on a strictly professional basis will graciously accede, but which if the dentist is a close personal friend will not be so likely to be considered obligatory. In other words, it is more difficult to establish legitimate professional discipline with a friend than with a stranger. The one matter of appointments will serve as an illustration of what is meant. It is necessary for the dentist, in order to profitably occupy his time, to arrange for his work on appointment, and it is to him a question of considerable moment that appointments be kept punctually. With a stranger this is quickly recognized and abided by, but an intimate friend is quite likely to ignore his obligation on the ground of familiarity and to presume on his friendship with the dentist for all kinds of laxity. As has already been said, it is better to obtain patients among strangers, and then when they have become familiar with the business methods of the dentist they will not depart from those methods and can safely be made into close personal friends.

*"The Church.*—The church is often used as a means through which to extend acquaintance, and under certain circumstances it is a perfectly legitimate medium. The close personal relationship of the members of a church and the frequency with which they meet each other all tend to favor the rapid spread of personal acquaintanceship, and there is quite naturally a bond of common sympathy arising from mutual aims and interests which links the members together more closely than under ordinary associations of life. To fall in with this in a natural way on the part of a man who is at heart a sincere professor of religion and whose proper place is found in the church is well and good. There can be no criticism of this; and if a young man creates acquaintances under these conditions he may honorably find it of benefit to him in a business way.

"But there is nothing in all the category of professional meanness which can compare in the slightest degree with an effort to use the church as a medium of securing practice on the part of a man who otherwise has no interest in it. To pose as a church-

going man or as one who has religious motives by an individual whose only aim is to further his business ventures is the basest of all perfidy and should entitle him to the hearty contempt of every one. Hypocrisy is bad enough in any relation in life, but hypocrisy which uses the church as a cloak behind which to build up worldly interests is absolutely beyond the pale of decency or tolerance. Unless the young man has religious instincts, or can go to church with pure motives for the purpose of receiving mutual or moral benefit, he would better stay away; or if he desires to go as a means of social enjoyment, let him at least avoid assuming a sanctimonious air or taking any prominent part in the functions of the church. In other words, let him avoid hypocrisy or deceit. No matter how successful a man may seem to be at this kind of game for a time, his sins will surely find him out, and his ultimate portion will be contempt and distrust on the part of the people. Even if he could succeed in deceiving the people, and thereby secure their patronage, there is always behind every hypocritical act a corresponding disintegration of character in the individual himself which ultimately will undermine the strongest personality and defeat the shrewdest aims.

"Let the young man be honor-bright in every relation of life, but particularly let him avoid trafficking with things so sacred as the religious convictions of the community in which he lives. I would rather cope with an open-handed devil any time than trust for one moment the fawning pretence of a sanctimonious hypocrite. Permanent success never yet came from following unworthy methods, and of all of these methods none is more detestable than the one of working the church for professional purposes."

With all the good common-sense and advice there is in this chapter, it is a pity the author has been a little careless in use of some of his words and the construction of his sentences. In fact, the faults of the orator are more or less apparent throughout the work, but if we examine the last two paragraphs of the chapter just quoted, we will notice the tendency to hyperbole in the first sentence. In the second there is a solecism. "To pose . . . by an individual," is not the customary use of the word, and the sentence would read better thus, "For an individual, etc., to pose." In the fourth, one young man goes to church for the purpose of receiving mutual benefit. You might as well talk of three of McPherson's sheep together mixed up separately with one of McAllister's. And in the last sentence of this paragraph the cart comes before the horse. The act is the cause of the "disintegration of character," and the latter would rather follow the act than be "behind" it.

In the next paragraph, we find the author "trafficking" with the religious convictions of the community. In the beginning of my review I said that he showed no evidence of having been



graced with a touch of the Muse, but I overlooked this phrase, for it surely borders on poetic license, without, however, much poetry.

These few examples will suffice to justify the criticism of carelessness and warrant withholding praise, however otherwise we may compliment the author, of his "well of English pure."

The remaining chapters—on the management of patients, bookkeeping, fees, collecting, and, in fact, all the relationships of a dentist to those with whom he comes in contact—are each worthy of numerous quotations, but I have no desire to infringe upon the copyright of the author, and must content myself with a compliment to him for great lucidity of illustration on delicate points. He knows so well the difficulties which young men meet with and his handling is so adroit.

Still, I cannot overlook two paragraphs on fees: "As to the size of an operator's fees the matter must of course be regulated to some extent by the customs in vogue in the locality where he practises. It is suicidal in every particular to make one's fees lower than the regulation fees of the neighborhood, as it is also usually injudicious to make them very much higher. This applies more particularly to practices in smaller towns, where an operator's fees are a matter of common gossip and where the precise fee for a given operation becomes well known. If an operator varies in any way from the regulation fees, it is always safer to raise the fees than to lower them. This may seem a strange statement, and yet it is amply borne out by observation. If a man's fees are lower than his neighbor's, there is always a suspicion that he is not so capable a practitioner, and invariably the cheap man draws around him a class of practice which at best is very undesirable. He gets the shoppers and the misers and the financially irresponsible. His is the *patronage* of the 'great unwashed.'

"To establish in a neighborhood the reputation of being the highest-priced dentist in the place is often a sheet-anchor of strength. It may drive some people away, but if the fees are at all within reason it will not drive very many worthy people away, and for one such who leaves a dozen others will come. In fact it is the very rarest thing imaginable for a dentist who is capable of giving good service to ever lose his *patronage* on account of high fees. Of course he must be sufficiently skilled to justify himself in charging well, and he must have some sense of honor in making his charges; but where there is one dentist who has failed on account of high fees there are ninety-and-nine who have failed from other causes. In many instances high fees are made the scape-goat of a man's failure when the real cause was something else. The mere fact of demanding and maintaining good fees tends to establish confidence in a man and draws to him the most desirable people."

And I quote these for two reasons: The most important be-

ing the excellent advice they contain; but also to call attention to the word *patronage*, where, I think, *practice* to be preferable; also to suggest that *highest-priced dentist* be placed in quotation marks since it is not supposed to be the language of the profession.

One other paragraph:

*"Guaranteeing Work.*—The request is sometimes made by patients to have their work guaranteed. This, as every practitioner knows, is an unreasonable request, and the only guarantee a dentist should ever give is to guarantee that he will do the very best he knows how for the patient's welfare. He may say to the patient, and in fact he should say, that if his operations fail through any fault of his he will cheerfully make the failure good. But he should never under any circumstances guarantee, for instance, that fillings will remain in for a certain number of years nor that a set of artificial teeth will wear a given time. Unless a patient has sufficient confidence in a dentist to know that he will remedy any defect in his work without a guarantee, the attitude of the patient to the practitioner is not such as to make their professional relationship harmonious and satisfactory, and they are better apart. A physician might with almost equal propriety be asked to guarantee that when he has once cured a patient of an illness the patient will never get ill again, as to ask a dentist to guarantee his work; and no practitioner who is honest will ever be led to do so unreasonable a thing."

This is very timely and marks one of the striking differences between the attitude of the professional gentleman and the mere artisan, the trafficker in teeth and sheets of gold.

In conclusion, this book contains more than the elements of material success. It expresses the great joy of the worker doing his best. It expresses the joy and grace of friendship between patient and operator. It expresses to an infant profession the principles which bring happiness and honor and worth, and which pave the way for "the things which are more excellent." Read it; it is worth while.

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## THE DENTAL ANNUAL.

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*The Dental Annual* for 1903 has just come to hand. It is a book of 190 pages with the matter arranged alphabetically. The intention is to give a complete abbreviated report of all important and new ideas presented in the literature of the year. This is the first attempt at such a work in dentistry, and is worthy of support



and commendation. It is useful for ready reference to an author or a subject. It contains details of dental education, schools, colleges, universities, examinations, licenses and laws of all English-speaking countries. There is an immense amount of work in collecting so much material, and giving due importance to each item without making a book so large that it would be useless. No doubt there may have been important matter left out of this number that will appear in the next issue. Notwithstanding, it is a commendable work, and we trust that it will be continued. It is published by Bailliere, Tindall & Cox, medical and scientific publishers, 8 Henrietta Street, Strand, London, England. Price, 7s. 6d. net.

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The above is a correct list of the dental organizations of Canada, with Presidents and Secretaries, so far as they are known to the Journal. It is the intention to keep a list of the officers of all Canadian societies in the Journal, so where there are omissions or errors please notify the Editor, who will make the correction, and as far as possible keep a corrected list, which will be of great value to the organizations.



# Dominion Dental Journal

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A. E. WEBSTER, M.D., D.D.S., L.D.S. - - - TORONTO, CAN.

93 COLLEGE STREET

*To whom all Editorial Matter, Exchanges, Books for Reviews, etc., must be addressed.*

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VOL. XV.

TORONTO, JUNE, 1903.

No. 6.

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## ANOTHER PRIVATE BILL DEFEATED.

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There have been many applications to the Legislature for Private Bills to allow the applicants to practise dentistry in Ontario, but few with so little to recommend them as the one presented to the Legislature a few weeks ago by Mr. Scadding, of Cleveland, O. The preamble of the Bill set forth that Mr. Scadding had entered a dental office in Toronto many years before matriculation was necessary, and that he has been in practice 14 years, six years in Canada and eight years in the United States. It also stated that he had attended and graduated in dentistry with honors in Ohio, and was a well-known dentist in the City of Cleveland. For the above reasons he wished the Legislature to direct the College to exempt him from matriculation, attendance at college, and all examinations except operative dentistry, prosthetic dentistry, and dental jurisprudence of the final year.

The facts brought out in the Private Bills Committee were about as follows: Mr. Scadding entered the office of Dr. Elliott, of Toronto, as laboratory assistant and continued as such for six years, then went to the United States and held a similar position ever since. He has recently been laboratory assistant to a Cleveland dental parlor company and not known to the profession there except as such. He had never attended a dental college nor passed any examinations of a dental college; but on account of having been engaged in dentistry for a certain period previous to a new dental law which came into effect a year or two ago in Ohio, he was allowed to present himself for examination before the Ohio board, which gave him a license to practise in that State. This certificate was flourished in the Private Bills Committee as the diploma of a college, but apparently nobody believed it.

After the Bill was presented for the first time, Mr. St. John suggested that it lay over till the next day and allow Mr. Scadding to have a conference with the College authorities. This was concurred in by the Committee.

When the dean of the College was appealed to as the only authority of the Board present, he said he had no authority to make any offer, but suggested that the Board might consider his case as a little different from others and allow him to practise in Ontario if he matriculated, attended college two years, and passed all the examinations. This proposition was immediately spurned by Mr. Scadding and his solicitor. They decided to take the chances of better terms before the Committee. The following morning when the Bill was called again, the Attorney-General made a very vigorous protest against such legislation, and pointed out that if such a Bill passed there would be fifty more who would snap their fingers at the college authorities and ask for private bills. Mr. Patullo, of Woodstock, said that many members had been asked to introduce similar Bills, but had refused, because such legislation is not in the interests of the public nor in the interests of higher professional education. He hoped this and all similar Bills would not have the sympathy of the Private Bills Committee. When the chairman asked if the preamble of the Bill should stand it was declared lost without even coming to a vote.

It is but right to state here that the Board at its recent meeting did at least two acts which will always redound to their credit. First, they appointed a solicitor and, second, the appointment was



N. W. Rowell, K.C., of Rowell, Reid & Wood. Mr. Rowell is a well-known lawyer and is well known among the members of the Legislature, and has more influence than almost any one else outside of the House. There would not be so many precedents for having Private Bills passed if the Board had seen fit five or ten years ago to employ an energetic, influential solicitor. Every Private Bill granted in the past will always stand as a menace to us before the Committee in the future. It is all very well to say in dental conventions and as we sit in our offices that no more Private Bills shall pass and that the Legislature must do so and so, but it is another thing to have our word obeyed. It is not enough to walk up to the Private Bills Committee and present the case for the profession and walk away again and believe that all is done that can be done. Members cannot be expected to read a Bill over which is perhaps not half true and immediately come to a proper judgment. All the circumstances must be explained to them privately by some one who knows them. No one will find a member unwilling to look into the merits of any case he is asked to pass judgment upon. Besides getting a member's promise to support a measure it is also necessary to see that he is present when the Bill comes up for consideration, because a member may belong to two or three committees which are all meeting at the same time, and unless he is specially interested he may be in some other committee-room. If the profession fully understood what is necessary to put a stop to Private Bills, they would appreciate the wisdom in the appointment of Mr. Rowell as solicitor. There should be many of the profession in Toronto who are sufficiently interested in the Legislature and legislators to become acquainted with the members and thus assist in the defeat of legislation that is not in the best interests of the public and our profession.

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### THINGS WHICH BRING DENTISTRY INTO DISREPUTE.

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There are often many little things said and done by dentists that in themselves do not seem to amount to much, but they show what way the wind blows. Once a lady was asked why she didn't like Mr. Jones, and she replied that she once saw him eat-

ing peas using a knife. The fact of eating peas with a knife is not in itself a just cause for serious offence, but a man who does not know that others do not do so, likely does not know many other things that he should. In other words, he is obtuse and not refined. He is judged by what he does. In the same way the man who at an evening party says that he will "pull a tooth" for one of the guests as his donation to the entertainment of the evening is adjudged lacking in refinement. Talking dentistry outside of proper places for such is indelicate.

It is said on good authority that not many years ago—and it may still be done for all we know—a dentist whose office was in Toronto used to visit small towns along the railway, north of the city, and had arrangements with the conductor of the train to give him time to fit the dentures for his patients on the station platform. An eye-witness to this procedure said that the patients looked like young robins as they lined up on the platform with their mouths open to have the dentures inserted. A machinist would not in such an undignified way run out of a train with a bolt in his hand to repair a disabled reaper on the station platform. He would more likely stop off for a few hours and with proper dignity repair the machine. The sight of a dentist with two or three dentures in his hand rushing out of a train and dashing up on the platform and picking out the owners of the teeth and inserting them must have been both disgusting and amusing to the passengers. It takes time to live down the results of such acts.

There are many dental offices in cities whose windows front on busy streets where patients may be seen in full view in the operating chair. In many of these offices there is a strong electric light used at night, and also a wide open window. To say the least it is indelicate to so expose a patient to the gaze of those on the street. Dental operations on a patient are not in the same class with mixing candy, which is sometimes done in a window as a means of advertisement.

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WE regret exceedingly that the transactions of the Canadian Dental Association have not yet been published and mailed to the members. The delay is caused by not being able to obtain all the original copy. We expect, however, to get it shortly.



## THE NEW DENTAL BILL OF ILLINOIS VETOED.

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The new Dental Bill of Illinois, which had successfully run the gauntlet of the Legislative Assembly and the Senate, fell at the hands of the governor. The governor, when interviewed by a large deputation of dentists, stated that he was not prepared to take suggestions from the State Dental Society as to who should be appointed members of the Dental Board, as provided in the Bill. His experience with other boards so appointed was not very satisfactory, hence the objection. A very serious objection to a state society making such suggestions is that all who are not members of the state society have no say in the election of the Board, as is the case in New York State, where probably a hundred dentists run the affairs of the five thousand in the state, and no possibility of even a small fraction of the five thousand becoming members of the state society in each year.

There is no question of doubt about it, the profession in every state should be given power from the Legislature to run their own affairs, subject, of course, to the approval of the Governor in matters directly affecting the public interest. We can say that such a scheme works admirably in Canada. In Canada we would consider it a reflection on the profession if we were told that we could not properly attend to our own legitimate professional affairs.

The veto power of a governor, as exercised in the United States, to those living under British institutions, appears rather strange. All our Governors have veto power, but rarely, if ever, use it; what the people want, as expressed by the voice of the Assembly, becomes law. A governor refusing to sign such a Bill, unless under the most peculiar circumstances, would be in danger of being asked to resign by the Federal authority. We have no absolute monarchs in Canada. What the people say goes.

## Editorial Notes

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DR. HARRY SILK, of London, was wedded in May.

DR. HARRY JACKSON, of Ottawa, has bought the practice of Dr. Dan. McPhee, of Arnprior.

DR. GERSHAM PROCTOR HOWARD was married to Miss Reide, of Ontario Street, Toronto, June 16th, 1903.

DR. BURTON LEE THORPE, of St. Louis, was recently elected President of the State Board of Dental Examiners.

AT Trinity University Convocation the degree of D.D.S. was conferred on Mr. Stewart, of Lethbridge, Assa.

DR. E. J. SANDERSON, Ottawa, Ont., R.C.D.S., 1900, died at his home in Ottawa the second week in May of cerebral meningitis.

DR. A. SCOTT IVES, the President of the Montreal Dental Club, entertained the members at dinner as a close to the year's meetings.

DR. FRED. BRITTON, the Secretary of the Brant County Dental Society, is just recovering from enteric fever, which has kept him from practice since November last.

DON'T always take advice from sign-writers and painters as to the size a sign or door-plate should be made; the larger the sign the more money there is in it for them. A professional sign is to help those to find your office who are looking for it, not to attract the multitude.

J. A. SMITH, dentist, of Windsor, has been appointed Collector of Customs at that port, and retires from a large practice which he has enjoyed for the past eighteen years, during ten of which he has had for partner, Dr. W. Revell, who will continue the practice, having taken into partnership a graduate who was at one time a student in the office of Smith & Revell.



PAUL S. SOUDERN, described in the *New York Medical Journal* a method of preventing the clouding of laryngoscopes and mouth-mirrors. His method was described by applying with the fingers, slightly moist, a film of soap of any brand or kind to the mirror, and then rub it off with a clean, dry cloth. The mirror will then be bright and clear, and will not become clouded when the breath is brought in contact with it. Try it.

DR. DOYLE and Dr. Ballachey, of Brantford, have been appointed a committee by the local society to prepare a pamphlet containing information for parents and guardians on the care of children's teeth. The idea is to distribute these under the name of the society to the patients of the members. It has been suggested that the board of the R.C.D.S. do such work as this, but they have not yet acted on the suggestion. Dr. McElhinney ought to give them another stir up on this point.

DR. OLIVER WENDELL HOLMES, in an address to a graduating class of medical students of Harvard University, once said: There is one safe rule which I will venture to lay down for your guide in every professional act, involving the immediate relation with the object of your care; so plain that it may be sneered at as a truism, but so difficult to follow that he who has never broken it deserves canonizing better than many saints in the calendar. A physician's first duty is to his patient; his second, only to himself. All quackery reverses this principle in its fundamental axiom. Every physician who reverses it is a quack. A man who follows it may be ignorant, but his ignorance will sometimes be safer than a selfish man's knowledge.

## Correspondence

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### UNPROFESSIONAL CONDUCT TRACEABLE TO THE APPRENTICE SYSTEM.

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*To the Editor of DOMINION DENTAL JOURNAL :*

DEAR SIR,—May I invite the attention of all members of the Royal College of Dental Surgeons and our Board of Directors to a feature of our educational scheme from which many and serious evils arise. This feature is the pupilage of students under private preceptors, which ought to have been abolished years ago, and in its place provided a proper spring and summer course of clinical instruction in the college. Having all the facilities and the teachers necessary, why should we let \$100,000 worth of property remain idle for half the year, while the students, for whose benefit it is maintained, are left to learn bad methods of practice and unprofessional views, habits and language under preceptors who are not qualified to teach—preceptors who perpetuate what otherwise would cease to appear in the manners, dealings, views and language of our graduates?

Why did no discussion follow your editorial treatment of this subject in October and November, 1901? It is surely of sufficient importance to warrant the attention of every dentist whose ambition is broad enough to desire a professional tendency in dental education, and the removal from the course of that which now militates against professional development.

Who now violates the code, peddles from town to village like the old time vendor of tinware, and so wears the title of "Doctor" as to make the public sneer in doubt that a dentist has any claim to such a title? The answer is easy, viz., the victim of that obsolete apprentice system which began when dentistry was treated as a trade; who learned as an apprentice, adopted the language and style of his preceptor, felt himself to be a tradesman and regarded his work as a mere means of making money. Later on we find dental students, awakening, with their better preliminary education, to look upon their experience under preceptors as drudgery devised and begotten of a meanness peculiar to the days of servitude, and imposed to render bitter and unwelcome the way to L.D.S. Bound was the word in the trades forty years ago before



the days of technical schools. But why now continue the bondage of the apprenticeship, the provocation to meanness, when we can cut it out and give place to better? Shall we still compel decently educated young men to serve as inferiors, obey orders, run errands, do janitors' duties and the coarse work of the laboratory for four years, each at the bidding of a master, who may be the meanest man entitled to practise in Ontario. Is this the course to breed a professional gentleman?

Undoubtedly we have practitioners of another sort, who speak, practise, study, read and write in elegant professional style; but how many of them will take students for tuition? Has any of them time and energy to devote to the instruction of a single student privately in his office? Will such a man use his patients as clinic for a student? This needs no further argument, I think.

It has been said that a course exclusively in college gives the student no chance to learn to conduct a practice! Let us consider this to find what it is a student cannot learn in a college infirmary.

Professors and demonstrators in our college are expected and assumed to be professional gentlemen, competent to teach all branches of theory and practice. All of them are familiar with actual practice, and are expected and paid to give instruction, not neglecting professional conduct, ambition, ethics, etiquette, adjustment and collection of fees, management of patients, etc., as a necessary part of that instruction. It is a fact that dental students can and do learn in college these things as well as technique, practical diagnosis, operating, prosthesis, therapeutics, management of diseased conditions, etc., and also develop such professional aims and ambitions as ought to guide a man in the conduct of legitimate practice. And it appears by recent discussions of the educational questions arising out of the work of the international meeting at Stockholm that students learn these things better and faster in a modern dental college than they have ever been known to do in any other way. This conclusion is expressed on all sides by teachers and examiners best qualified to judge.

Now that a student can attain this proficiency in college, and can learn by visiting the offices of respectable dentists in the city, and the depots a great deal about office equipment, appliances, lighting, furniture, etc., what more does he need in order to practise? He can do the work. He knows what he should do.

He can select furniture, equipment and material, manage people, collect his fees and deport himself as a worthy member of our profession. What else would you have him learn about practice? Let us be candid. Do we desire a student to acquire the habits of thought, language and dealing and the methods of practice in vogue among such men as are most willing to use students? Should he learn to extract teeth for half the clientele of the office, including children, while loudly proclaiming his readiness to do crown and bridge-work, to display a brand new gasometer, a ready-made golden crown (cemented on without removing enamel or putrid contents of root canals), to issue 1,000 ready-made pamphlets such as now offered by the Imperial Crown Co., with his name on the cover; to buy a \$300.00 lot of teeth, to buy Kellogg's paste and give a testimonial; to boast, to Jew, to peddle; to do the other fellow up while imposing on the ignorance and credulity of a badly instructed clientele and reviling his betters? These are the "business methods" and the "How to conduct practice" that a boy cannot learn in college.

If any one doubts the justice of these remarks let him examine the case of any preceptor who has used all the students he could get, or all the law would allow. See their offices, appliances, cards, signs, posters, press notices, and hear them talk. Note the light in which they look upon a student. Read this from the cover of a pamphlet issued by a man who had no academic degree, had hardly complied with the lawful requirements of twenty years ago for L.D.S., and yet filled the office of preceptor for some seventeen dental students in the past twenty years:

DR. ....

SURGEON DENTIST,

Is the only man north of Toronto that

*Extracts Teeth Without Pain,*

Using the wonderful

AMERICAN GASOMETER

Using a gas-bag is dangerous and  
that is humbugging the people.

I can extract from fifteen to twenty teeth  
at one sitting.

.....



“Teeth absolutely abstracted free of pain” is a line verbatim from another of this preceptor’s cards published weekly for years.

Is this the only preceptor who trained students in the foregoing style, or is this the only objectionable sort of thing inculcated as a habit on those unfortunate students? What are the seventeen doing now? Only one to my knowledge is a member of a dental society. Some are preceptors and use students as they themselves were used, in drudgery, and to make cheap “sets” so “a cut” can be advertised to do up the man who has no student. Most of them peddle or have peddled so far as I know. They learned to peddle and will teach peddling. Few of them read a dental journal, and one—a graduate in Arts (B.A.)—for years the only dentist in a country town of 3,000 people, twenty miles from any confrere, extracted teeth at the suggestion of his patients, and advertised “best sets,” “Justi teeth,” \$5.00, in a newspaper, and used students to make them. His case as a student, and afterwards a preceptor, shows that high matriculation, good and desirable as it is, will not counteract the effect of bad apprenticeship. Who now need ask why a daily paper refers to dentists as “tooth-pullers?”

The indenture is thought by some to be a restriction, a safeguard against over-crowding. Let us see. Can anyone name a student, having matriculation credentials and the desire to study dentistry, who abandoned his design for want of a preceptor? I know of none. Clever men might be named who now adorn the ranks of other professions because they would not condescend to become apprentices in dentistry, to suffer humiliation not required in other professions. So it appears the clause does sometimes restrict self-respecting young men of good preliminary education.

Does the indenture safeguard us? And how? Can anyone doubt that a preceptor of the kind most common in Ontario will encourage and induce young men to become dental students, when by so doing he gets a free janitor and mechanic for twenty calendar months, and, perhaps, a cash fee besides? Have we not had enough of this kind of safeguard?

Why, then, should we not abandon apprenticeship, and teach dentistry in the school where efficiency and the absence of corrupting influence can be made reasonably certain?

Begin the annual spring course for students at the close of the winter term. Let it be devoted to practical work under instruction, both didactic and clinical, one in touch with the other. And

let three spring courses be compulsory for each student. This course should continue until mid-summer, after which the student should have the remaining time of summer for holidays, in which to read, think and broaden his views out of the rut into which dentists are liable to fall. Give dental students a chance to prepare for distinguished citizenship, and not for the epitaph, "Born a man and died a dentist."

I hope to see this reform accomplished, that breeding of the undignified and unprofessional in our ranks may cease, and the ear-marks of trade be abandoned; that better opportunity to prepare for his life-work may be given the student, and better evidence of his learning given the public; that inducement to young men of genius and culture may be stronger and the advent of the undesirable less frequent.

May I suggest that each member of the Royal College of Dental Surgeons address to his district representative a prayer for the early adoption of the measure here outlined. It is the business of the board to comply with the well-founded wishes of the profession, and ours to express and justify such wishes.

The details of the change asked for present little difficulty, for we have to guide us the experience and example of all the leading American colleges, in which for many years spring and summer courses have been successfully given. The best of their students voluntarily take these courses, and teachers of widest experience approve it in preference to office work as a means of education. Even our own board has seen fit to recommend that students spend their first term in the school rather than the private office. If the school is better than an office for the first term, why not for the second, third and all terms? Likewise if bad instruction is to be avoided for the first year, why not avoid it in all the years? "Oh, Consistency, thou art a jewel!"

If anyone can give a reason or offer even a respectable apology why the Royal College of Dental Surgeon should remain ten years behind the times in the clinical instruction of their students during summer, while proper facilities for that instruction lie idle, let him do it in the next issue of THE JOURNAL. If such a reason can be found we want to know what it is.

No good is accomplished by scolding about quacks and advertising. We must go to the root of the evil, as here pointed out, and remove the cause. A stream cannot rise higher than its fount, nor is a dental student likely to arise superior to his preceptor whom he solemnly binds himself to serve and obey and whose example, in matters of practice, he is compelled to follow. To state the "obligations of preceptors" as a remedy is like stating the obligations of a smallpox patient when put to bed with one who has not that disease.

Yours truly,

COMMON SENSE.



To the Editor of DOMINION DENTAL JOURNAL:

DEAR SIR,—The enterprising management of a gratuitous advertising sheet distributed about the northern part of the city inserted the cards of some dentists setting forth their "specialties" without their consent or knowledge. As I happened to be one of those chosen for these favors I remonstrated with the manager with the result that I received the enclosed reply. While I trust that it is unnecessary for me to make any explanation of the appearance of my name in this sheet. I shall be obliged if you will insert the enclosed in your next issue.

Yours truly,

June 6th, 1903.

HAROLD CLARK.

*Dr. Harold Clarke, 1104 Temple Building, City.*

DEAR SIR,—In reference to your professional card that was inserted in our *North Ender* last week, I find that it was put in without your authority by a new agent that I have canvassing, who intended calling on you to solicit a continuation of the card.

Yours very truly,

C. A. WILSON.

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## Obituary

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### DR. W. BRACE.

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DR. W. BRACE died at his home, King St., Brockville, 7 p.m., April 24th, 1903, aged forty-eight.

Dr. Brace was born in Portage du Port, P.Q., in the year 1854, a son of the late Theodore Brace, lumber merchant and mill owner. The subject of this obituary graduated from the office of T. W. Raines, of Almonte, in 1879, coming to Brockville the same year, and buying out F. Soper, where he continued to practise dentistry up to the time of his decease, about twenty-four years. He was secretary of the E. O. D. A. for several years, and afterwards elected president of the association. Unobtrusive by nature, he made many friends, but no enemies; of sterling character, loved and respected by all who had the pleasure of his acquaintance; always sincere, warm-hearted, energetic, genial and hopeful, of spotless integrity—a man to hold and enlist the warm esteem of those with whom he came in contact; a man of few words, firm in his convictions, but not aggressive. He was well thought of as a citizen, loyal to his friends, faithful in his devotion to his church, with which he had been identified for many years, being a member of the choir as well as trustee, and next to his business, nothing gave him so much pleasure as contributing of his means and time towards its welfare and support, and as a

special mark of the esteem in which he was held the trustees attended the funeral in a body. He was benevolent and kindly, his attitude seemed to be "malice toward none and charity for all." He lived a quiet life and died a happy death.

Twenty-one years ago he married Miss Adelia Arnold, the third and youngest daughter of the late John Arnold, of Brockville. There are five children, one girl and four boys, the eldest, Harry, a diligent and successful student of the R. C. D. S., Toronto, who was suddenly called home when in the midst of his examinations to the bedside of his dying father.

The funeral was conducted under the auspices of the Odd-fellows, he being a Past Grand of Lodge No. 9. By diligence and attention to business he acquired considerable property, this, together with the large amount of insurance he carried will leave his family in very comfortable circumstances.

Some few weeks previous to his death he sold out his dental practice to Dr. Woodrow of Whitby. He had been ailing for some years, and went to Calgary, N.W.T., about eighteen months since for his health, and upon returning seemed much improved; but unfortunately, early this spring, an attack of la grippe laid him on a bed of sickness, terminating in pleuro-pneumonia, from which he died. He passed quietly away surrounded by his family and one brother, who had just arrived from Wisconsin. His remains were borne to their last resting-place by six dentists, Drs. Sparks, Beacock, Burns, Clark, Gowan and Woodrow. Little did the writer of this sketch think that he would so soon be requested to pen a last tribute to his memory.

"There is no death! what seems so is transition.

This life of mortal breath

Is but a suburb of the life elysian,

Whose portals we call Death."

D. V. BEACOCK.

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### For Sale.

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#### DENTISTS—A RARE CHANCE.

The most successful practice in Toronto, doing very large cash business and getting high fees. An ideal corner office, luxurious equipment, electrical appliances, separate operating rooms, north light, hot and cold water, modern plumbing, steam heating, long lease, low rent, owner retiring from practice. The price is less than last year's cash receipts. Easy terms. Apply,

THE C. H. HUBBARD CO.

44 Adelaide Street W., Toronto.



# Dominion Dental Journal

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VOL. XV.

TORONTO, JULY, 1903.

No. 7.

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## Original Communications

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### PORCELAIN IN CROWN WORK.

BY J. A. SHERWOOD, D.D.S., BUFFALO, N.Y.

Read before the Western Ontario Dental Association.

During the past three or four years much has been said and written upon the subject of porcelain, especially in its application to the filling of teeth, and while too much stress cannot be laid upon the usefulness and esthetic appearance of this line of work, yet we are apt to lose sight of a wide field of usefulness for porcelain in its application to crown and bridge work, especially the crown work. I have nothing original to offer in this paper, but its object is to bring before you some of the uses of porcelain in crowning teeth, and to emphasize some of the methods now used by those who practise this line of work. Porcelain finds its greatest range of practical usefulness in its application to crown work, and while it has its place in bridge work also, the field is more limited, and, owing to lack of time, I shall confine myself solely to its application to crowns. For this line of work, porcelain appeals to us because of its esthetic qualities, its strength, and its capabilities for making the finished work hygienic. While we have a great many kinds of porcelain bodies to choose from, there are but a few which are well suited to this class of work, and it is in the proper selection of a porcelain to fulfil necessary requirements that so many have failed, and have cast aside this valuable material as useless in this work. Porcelain intended to fulfil the requirements must possess strength, permanency of color, the minimum amount of shrinkage, a fusing point sufficiently high to make the attachment to porcelain teeth secure, and must permit of accurate carving; and these qualities can only be found in that class of porcelain known as "high fusing." A great many have become enthusiastic over the use of porcelain in con-

struction of crowns, and have started out to put their theoretical knowledge into practice by using low fusing porcelain. They have found their enthusiasm growing less when the patient returned with the facing separated from the newly-added porcelain, or when the work seemed to come from the furnace always with a porous surface which they seemingly could not overcome, and they learned by dear experience that the amount of heat necessary to fuse this porcelain properly must be very accurately gauged, lest it should be burned beyond repair. They found, also, that its shrinkage was so great that several bakings were required to produce a finished piece, and thus, little by little, their enthusiasm disappeared, and they either became entirely discouraged, or changed the material for a higher fusing one. But while experience has shown that the high fusing porcelain is best for this work, not all of those classed as high-fusing permit of accurate carving, being of too coarse a texture, and thus many of the porcelains used for continuous gum work must be set aside, or must be brought into a more finely divided state by grinding in a mortar. Of the many porcelains available, I have found the S. S. White high fusing body and Brewster's foundation body and enamels to be the best suited for this work.

Perhaps the most important part of this work and the part which needs most careful attention is the metal framework or foundation upon which the porcelain is built, and to illustrate this I will call your attention to the several diagrams, and also to the model showing the finished crowns upon the central roots. (Diagrams 1 and 2.) The metallic framework must be sufficiently strong to support the stress which is to be brought upon it, and it is here that a great many failures result from what otherwise would be a beautiful piece of work. In the construction of the central (Diagram 1), the root is banded with platinum plate 28-30 gauge, being narrow on its labial part, and wide on its lingual, so as to project above the root. Notice also that the labial edge of the root is bevelled so as to give the cap and collar a rounded labial aspect, which, when covered with the facing edge, is entirely hid beneath the gum margin. This band has a lap joint, and is soldered with the smallest amount possible of pure gold. Platinum solder, 25 per cent., may be used for this purpose, but I have never found the band to open up or weaken when I have used a close lap joint, the smallest possible amount of pure gold, and have the heat carried high enough to make the platinum take up the gold until it becomes a part of itself, making practically a platinum soldered joint. To the labial edge of the band a floor of 29-30 gauge platinum is tacked, and then cut to the exact size of the root circumference, so that it may be burnished down upon the root surface inside of the lingual projection of the band, and is there soldered in place with pure gold.



This gives a cap covering the root, and a projecting apron on the lingual side to protect and strengthen the porcelain. The post of 14 to 16 gauge iridio-platinum wire is now inserted and should be sufficiently long in the root to overcome the stress to which the crown is to be subjected, and also extend through the cap far enough to engage the pins of the facing to be attached. This post is also soldered with the smallest possible amount of pure gold. The edges of the cap and post upon which the porcelain is to be placed, are now rounded with a stone so as to leave no sharp corner of metal to act as a wedge in fracturing the porcelain. The cap and post is placed on the root, and the facing selected. In selecting facing for this work, choose those which are of the highest fusing material, and which will not change color during the baking. Of these I have found the Consolidated and Justi facings to be the best. For all the anterior crowns, the facing may now be ground and fitted to the cap in the mouth. If the proper facing is selected, there is very little grinding to do,

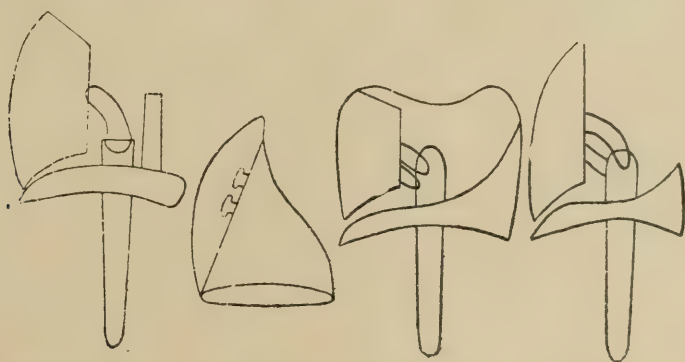


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 5.

as it is best to let the facing stand away slightly from the cap at its neck and project over the labial edge, which has been rounded for the purpose, so that the new porcelain may be packed around its neck. This is a great saving of time to the usual method of making the banded crown where an impression has to be taken, and a model made to work upon. When fitted, the facing is waxed in place and removed and invested in a very small instrument, first having partly bent the pins over the post, so that they may be soldered to it. When wax is removed, the contact of pins and post may be further bettered and then united to the post with pure gold solder. When cool pickle the work in hydrochloric acid, and it is ready for the reception of the porcelain body. This should be applied first rather thin, so as to fill all the small interspaces, and then thicker, packing it well and absorbing all the moisture as it comes to the surface by jarring or tapping the crown. A great deal of the strength and density of the piece depends upon how well the porcelain is pressed into place. Usually two bakings are all that is necessary if the crown

is well built up at the first baking, but three may sometimes be necessary if the crown is large. The last bake should consist of enamel, and should bring out the desired color, while the surface should, when properly baked, present a smooth, dense, glossy appearance. No finishing is necessary except the exposed metallic part, which may be polished with sandpaper discs. So far I have called your attention only to the central of Diagram 1.

Variations occur in the construction of this crown in bicuspid and molars, as here we have the occlusal surface to deal with, and the stress upon these crowns is in a different direction to that of the centrals. In placing a crown upon a bicuspid or molar, especially upon the bicuspid, a good deal of judgment is required, and a great deal of the success or failure depends upon the bite. If we remember that the strength of porcelain is in proportion to its bulk, we will not have much trouble in deciding whether the case is suitable for a porcelain crown or not, but if a porcelain crown of this kind is to be inserted, it must be made with a strong metallic frame, and root ground as far as possible to allow the greatest possible bulk of porcelain. Here a facing may or may not be used as you wish, but in either case some means must be taken to place the porcelain in position under pressure, so as to have as strong and dense a crown as possible. The crown may be moulded from a metal mould, being made larger to allow for shrinkage, or the porcelain may be packed into a matrix made to suit your model upon which you are working, the ends of the matrix being held in place by hard wax until the crown has been built up the desired height. The matrix is then removed by melting the wax. In the construction of the bicuspid or molar, some recommend the addition of a small post on the cap to support the lingual cusp, but I have found in my experience that anything of this nature which breaks up the continuity of the porcelain tends to weaken it, and I have used the projecting lingual part of the cap instead, thus forming a cup for the reception of the porcelain, and which does not interfere with its continuity of structure. Another form of crown in which porcelain can be used to advantage is the jacket crown, sometimes known as the Capon jacket, and made similar to the Land jacket crown. This crown consists of a platinum shell, with a flat labial surface, the tooth having been ground to allow of this, and on this labial surface is soldered the heads of two platinum pins taken from porcelain teeth. A thin veneer porcelain facing is fitted to this surface, and is fused to the platinum by adding new body underneath it. This veneer of porcelain may be made by taking a facing of the proper shade, and grinding off the pins and the back of the facing until just the labial surface is left. This crown is applicable for peg-shaped laterals, or badly pitted teeth of children, where it is essential to preserve the pulp for as long a time as possible.



There are a great many other ways of utilizing porcelain in restoring lost parts of teeth, and the skilful artist soon finds that he could not get along without this valuable material. Many unsightly patches of gold are now avoided by the use of the more esthetic material, while no other material produces such gratifying results to both patient and dentist, and so its use is increasing daily, and dentists everywhere are becoming to recognize the fact that they must become familiar with the art of manipulating porcelain, in order to keep pace with this age of progress.

#### DISCUSSION.

H. R. ABBOTT (London) was pleased with the simple, clear presentation of the subject. It made porcelain work much simpler to him. The importance of a strong framework could not be overestimated. The jacket crown which has been used for some years is not applicable to any but peg-shaped teeth, because of the pain caused by the necessary grinding. Dr. Abbott asked why this crown was sometimes called the Capon crown, when Dr. Land, of Detroit, first used it and described it?

E. A. TESKEY recognized Dr. Land's principles of porcelain work, in what the author presented. Why use high fusing body?

Dr. SHERWOOD, closing, said that he did not know why the jacket crown should be called a Capon crown. The objection to low fusing body in crown work is the extreme shrinkage, many bakings destroying the texture of the porcelain. It is hard to handle, and changes color.

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### POSTS AND POST HOLES.

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BY HAROLD CLARK, D.D.S., TORONTO.

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Read before the Western Ontario Dental Society.

All crowns may, in a general way, be divided into band crowns and post crowns. The main advantage of the band lies in the strength it gives to the root, just as a ferrule strengthens and protects the end of a stick. The great disadvantage of the band principle is the inevitable irritation to the gingival margin and the nidus formed for fermentable accumulations. No matter how perfectly the root is prepared, or how accurately the band fits it and is burnished to it, the gingival margin will in time recede from it, showing that it is a source of irritation. Examination of such work, especially of our own, will convince us that this ideal is rarely attained throughout the entire perimeter of the band, thus leaving a condition that nature will in time resent. The great advantage of the post crown, having no band, lies in the perfect

continuity of surface that may be had from root to crown, and from crown to root, just as if a perfect tooth had been broken across at the gingival margin and the parts cemented together. There need be no irritation and no interference with the normal condition of the interproximal space, but the great, if not the only, objection to the post or bandless crown is the danger of fracture to the root. And yet of all the multitudes of bandless crowns is it not marvellous how few of them ever split the roots that support them? The purpose of this paper is to consider some of the conditions and principles involved in post crowns to see if there is not some ideal to be attained in the form and proportion of the post and the enlarged root canal that receives it, and thereby reduce the percentage of these failures. One element of this ideal is surely the removal of the very smallest amount of tooth tissue necessary for the satisfactory retention of the crown. The post should, therefore, be of the minimum size, consistent with ample strength, and for the purpose there is, perhaps, no material to surpass platino-iridium. It resists the highest heat of porcelain work; it is non-corrosive, unbreakable and possesses a rigidity approximating annealed steel. In determining the shape of the post a point in engineering concerning the strength of materials is of instructive interest. The end of a two by four-inch beam extending from a support will bear a certain load, say  $x$  pounds. Increase its lateral dimension, making it four by four inches, and it will bear a load of  $2x$  pounds. Increase its vertical dimension by the same amount, making it eight by two inches, and it will bear a load of  $4x$  pounds. That is, its strength varies directly with the dimension at right angles to the stress, but it varies directly with the *square* of the dimension parallel with the stress. In order to double the strength of the beam, it would be necessary to add 100 per cent. to its lateral dimension, but only 41.4 per cent. to its vertical dimension. Now the strain upon the post of a crown on any of the anterior teeth is much greater in a linguo-labial or labio-lingual direction than in the cross direction. Therefore the ideal crown post would be flattened, and not square or round. Nature seems to have recognized this principle, and accordingly all single-rooted teeth are flattened more or less disto-mesially. The principle is also observed in the post of the Logan crown. But how often where these crowns are used do we see the post hole for this flattened post made perfectly round, thus weakening the tooth by wasting a great amount of tooth tissue laterally and inviting fracture of the root. (See Fig. 1.) The ideal form for the post hole should be such that the post would exactly or approximately fill it. The ordinary instruments to our hand do not enable us to form this flattened post-hole with accuracy, and unless it is accurately formed it will be difficult to fit the post to it satisfactorily. I accordingly designed a special reamer for the purpose. (Fig. 2.) It is simply a three-sided instrument tapering slightly towards the point,



which is so dulled that it cannot cut. I have these reamers for both the direct and the right angle handpieces and two sizes for each. In preparing the pulp canal for the post I first of all enlarge the natural canal with Donaldson's canal cleansers, then with Ash's canal reamers (Fig. 3) until it is as deep as the desired length of post and of a diameter equal to the lesser diameter of the flattened post to be used. I then insert this special reamer, and press it to the bottom of the enlarged canal. The point being

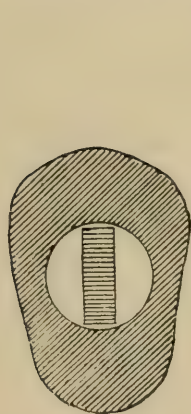


Fig. 1.

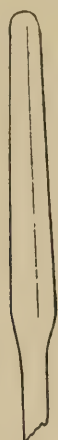


Fig. 2.

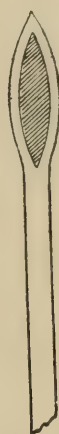


Fig. 3.

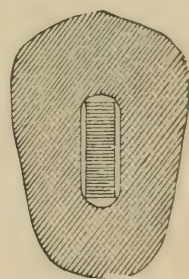


Fig. 4.

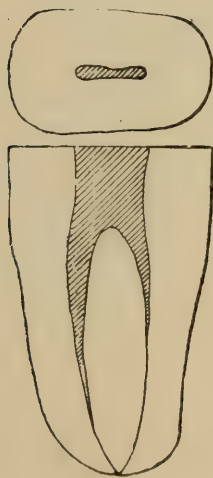


Fig. 5.



Fig. 6.

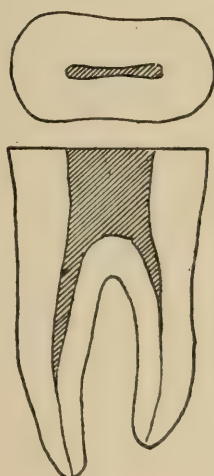


Fig. 7.

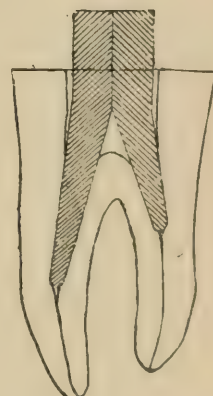


Fig. 8.

smooth does not cut and being held firmly to the bottom of the canal the hole can be enlarged linguo-labially to the shape desired with the utmost accuracy leaving the maximum amount of tooth tissue where most needed. (See Fig. 4.) The posting is then tapered and fitted to the hole. The tapered post conforms to the shape of the root, being smallest where least strength is needed, and when properly cemented in place is quite secure. This form of post has the great advantage of being removed with comparative ease when so desired.

In considering the posts of bicuspid crowns we may for convenience divide these teeth into three classes. First, the bicus-

pid with one root and a more or less round canal resembling a superior incisor; second, the bicuspid with one root, but a bifurcated canal; and, third, the bicuspid with two roots more or less divergent. The first class needs no special consideration. These roots would be prepared and crowned in the same manner as described for incisors. A section, linguo-buccally, of the second class presents canals more or less resembling those in Fig. 5. By means of the special reamers these canals may be enlarged and formed so that the opposite walls, the buccal and the lingual, may be either parallel or converging toward the apex. Flattened posting is then fitted into each canal, and the two pieces so filed on their adjacent edges that they may be in contact when in position (Fig. 6). These posts may be soldered together before being pressed through the platinum floor, or sometimes it is conducive to accuracy to solder them into position separately. In the third class with separate and divergent roots (Fig. 7) each canal is prepared in the same manner as that described for incisors. One canal is usually longer and larger than the other, and indicates a larger and stronger root, on which the main reliance for retention of the crown must depend. A post is fitted into each canal and bent so that the coronal portions are parallel and in contact (Fig. 8). After the platinum floor has been burnished and approximately trimmed to shape the longer post is pressed through, and the two parts soldered. Then with these parts in position the other post is pressed to place and its relation to the longer post marked. The parts are removed separately and soldered. If the divergent posts will not enter the opening some judgment must be exercised. If the amount of tooth tissue about the smaller canal will afford it the opening may be widened, or the points of the posts may often be bent towards each other a little and still go to place. This failing the outer side of the smaller post must be filed till both will enter the opening. Having a post in each canal will not only increase the rotation of the crown, but it must bind together the roots and minimize the possibility of fracture.

While I have been using these methods for some time I cannot say that I have had the work under observation long enough to make any comparative statement upon results. I feel confident, however, that the observance of the principles set forth in the construction of this particular class of crowns must lessen the dangers that beset their life.

I trust that the subject has not been lacking in interest.

#### DISCUSSION.

Dr. A. J. McDONAGH (Toronto) opened the discussion on Dr. Clark's paper. He complimented the essayist on his manner of presentation, and upon the ideas set forth, but was not prepared to accept all he said. Dr. Clark seemed to have a wrong



conception of the force that dislodges a crown, and a wrong conception of the stress upon the post and the root of a crowned tooth. When stress comes against the lingual aspect of an incisor crown the labial portion of the root has a downward pressure, and a lifting force on the pin. There can be no force to either break the pin or split the root until the fulcrum on the labial side gives way, or the pin is raised from the root. Crowned roots never split until the cement on the labial aspect is dissolved out thus losing support for the crown. A tapering post is not desirable, nor is a flattened one. Equal strength can be had by making the crown in the ordinary way, and then drilling a small hole from the lingual through the crown into the root in an apico-labial direction until the main post is reached, then into this hole is cemented a dowel.

Dr. SHERWOOD (Buffalo).—The essential feature of a post is to have it accurately fit the canal so there may be little room for cement. In cases where the canal is very large, it is well to wrap platinum foil around the post and solder it. The idea of soldering the two posts together in bicuspid is a good one.

H. R. ABBOTT (London) expressed a satisfaction in hearing Dr. Clark's paper, congratulating him for his manner of presentation. It was his opinion that the post should accurately fit the prepared canal.

J. MILLS (Brantford) said he had made an instrument with a movement somewhat like an engine mallet, in which may be attached almost any instrument. With a narrow chisel-shaped point in this instrument, a root canal may be made as broad as desired.

J. E. WILKINSON (Toronto) asked upon what experiments was based the idea that the post of a crown should accurately fit the canal.

E. C. ABBOTT (Toronto) objected to banded crowns, and agreed with the essayist that a flattened post was stronger and gave less likelihood of fracture of the root. The idea of soldering the posts together in bicuspid is a good one.

GEORGE GIBB (Blenheim) desired to know why a post need be so rigid. A less rigid post is less likely to cause fracture of the root. The old hickory peg posts are mostly found in the grave; they rarely broke, or the roots seldom were fractured. A slight yield to the post frees the root from sudden splitting forces.

A. W. THORNTON (Chatham) thought that in many cases instead of the post breaking or a loss of fulcrum in the labial aspect of the root, the stress would break the whole labial aspect of the root forward. A tapered post has an advantage in small roots as laterals. A great length can be gotten without danger of puncturing the root.

F. J. ADAMS (Toronto) opposed the tapered round pin, as

it has a tendency to work up in the canal and as soon as this occurs there is danger of fracture of either the post or the root. A round, well-barbed pin is quite safe.

J. MILLS (Brantford) asked Dr. McDonagh if the supplementary post he suggested could be used in porcelain crowns, to which Dr. McDonagh replied in the affirmative. It is done by making a sleeve for the pin.

G. A. BENTLEY (London).—What is the technique of soldering the two pieces together in bicuspid crowns?

DR. CLARK, in closing the discussion, thanked the meeting for the generous reception given his paper, and answered questions that arose in the discussion. In response to Dr. Wilkinson's question he pointed out that when the post didn't fit the opening made for it in the root it would have to rest in a mass of cement, which being more friable than tooth tissue was a poor anchorage for the post than when the latter fitted the tooth closely. In reference to Dr. Gibb's question concerning the value of rigidity in a post it was pointed out that a post lacking in this respect soon left a space at the lingual portion of the joint, which sooner or later resulted in caries.

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## THE ATTRACTION OF ADHESION APPLIED IN DENTISTRY.

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BY E. A. TESKEY, ST. THOMAS, ONT.

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Read before the Western Ontario Dental Society.

The forces of nature are so varied and complex that to gain even a little knowledge of a limited number requires constant application and close observation. We are so accustomed to use them empirically from having noticed results accomplished, thereby without any clear understanding of the nature of the forces, or how much we may expect from them other than what an indefinite experience has taught us, and we seldom stop to inquire into their special characteristics that we might get the most out of them.

The attraction of adhesion is one of these, and, without knowing definitely how or why it exists, we can consider some of the conditions under which it exerts itself, that we may the more intelligently use it to the best advantage. It is that force which binds the surfaces of masses together, and appears to be a molecular influence since it is only exerted when they are in intimate contact. A familiar example all may have noticed in the force



necessary to separate two polished surfaces of glass. When they are large, it is exhibited so strongly as to often break the plate before the adhesion is overcome, and inasmuch as this will occur in a vacuum, it cannot be due to atmospheric pressure.

In studying the phenomena, three important conditions by which it is influenced have been learned, viz., intimacy of contact, area of contact, and direction of opposing force, that is, it will withstand a greater force at right angles to the adhering surface than at any other angle. With these facts fixed in the mind, it is easy to trace the important part it plays in the laboratory and operating room, from the making and repairing of dentures to the constructing and retaining of fillings. In the repair of a rubber plate, we expect a piece of vulcanized rubber to adhere to an already vulcanized plate by simply interposing a film of soft rubber to ensure intimacy of contact, and we are never disappointed. Fillings depend largely upon the same force for retention, as we can notice in cement fillings which, by intimate contact with the walls of the cavity, alone are retained in place; but it is in the construction of gold fillings I would like to especially notice its offices. In this class of fillings it is exerted not only in uniting the pellets, but also possibly in a degree adhering to the walls of the cavity. One surface of gold adheres to another by a force in direct proportion to the intimacy of contact, and experience has taught all gold workers the necessity of perfect cleanliness from dampness or other tarnish of surface in order to adhesion or welding of successive pellets in construction. Some secure this intimacy by heavy malleting, which I believe to be largely unnecessary that we will refer to farther on. Gold surfaces are held together by a force proportionate to the area of contact, that is, two uniform surfaces coming together will have a larger area of contact than two uneven surfaces; consequently the necessity of keeping the filling surface uniform, and to this end using plain foils and smooth-faced pluggers. Some appear to think that the interlacing of fibres, as a sailor would splice a rope, are necessary, or a help, to the adhering qualities of gold, and use deeply serrated instruments to secure that end, but that is theoretically wrong, and will be noticed by careful observers to be wrong in practice, for the pitted and corrugated surface furnish less surface of contact, more or less area at other than right angles to the opposing force, consequently less effective for retaining purposes. We should learn from the foregoing that the more we use crystal sponge corrugated, and other than plain foils in ropes, cylinders, and pellets, other than plain, the harder it is to secure the uniform surface which secures the best results, and by using plain foil on uniform surfaces a large amount of the malleting can be abandoned in securing the desired result, much to the relief of both

patient and operator, and a saving of much valuable time. I think I can venture a little further, that if we used heavier foils much energy would be saved. What is the use of folding a No. 4 foil to the thickness of a No. 32, and be compelled to make the whole mass homogeneous by the application of extra force when we can get a No. 32 ready made, that can be applied with less pressure and secure the same or better results? This general idea has been illustrated by our esteemed contemporary, Dr. Mills, of Brantford, when he promulgated and demonstrated that an impact or heavy pressure was not necessary to the adhering of gold, but simply burnishing one piece on to another, the desired results could be better obtained, the reasons for which are those above stated: a uniformity of surface securing a greater area of contact, both to the gold surface and the walls of the cavity. I venture the assertion that the time is not far distant when gold will be inserted largely by this method, and we will be nearer the ideal filling, and the automatic or any other impacting instruments will be as are the turnkeys or carved ivory for artificial substitutes in the mouth—things of the past.

#### DISCUSSION.

Dr. A. W. THORNTON.—Dr. Mills, of Brantford, has for some time been burnishing the gold into cavities in making gold fillings, but in the speaker's hands such methods were a failure. It is said that burnished fillings are not a homogeneous mass, and may be flaked off in layers as it is burnished on. It would seem that an irregular surface, as is left by a deeply serrated plugger, would give a greater area of adhesion, and consequently should be a better filling as a result.

H. R. ABBOTT (London) said he always failed to get cohesion of gold once the surface became burnished.

Dr. TESKEY, in closing, said that cohesion depended upon a smooth clean surface; 32 gauge plain foil is the most suitable form of gold for burnishing. Quite true, an irregular surface presents a greater area for adhesion, but the greatest strength is at right angles to the two surfaces in contact, and since the force to dislodge a filling is not at right angles to the walls of the eminences made by a deeply serrated plugger the greatest strength is not attained in the direction in which it is required.



## THE IMMEDIATE TREATMENT AND THE FILLING OF DEVITALIZED OR PARTLY DEVITALIZED TEETH.

BY A. J. McDONAGH, L.D.S., TORONTO.

Read before the Toronto Dental Society, April, 1903.

*Mr. Chairmen and Gentlemen,*—The subject which we are about to discuss this afternoon is of very great interest to every dentist, and particularly, as I intend to view it, to the busy man to whom time counts so much.

Of course, it is unnecessary for me to say that although we are very anxious to save time, we must not for that reason shirk any part of the work which would endanger the permanent efficiency of the completed operation.

There are a number of different degrees of pulp infection. Sometimes the pulp has become infected before the cavity, as we see it with the naked eye, has reached the pulp chamber, in which case I would unhesitatingly open into the pulp chamber with the assistance of chloride of ethyl, devitalize the pulp, remove it, and fill the pulp chamber, root, and cavity at one sitting, and without delay.

Those cases are not the rule, however; generally the cavity has reached the pulp chamber, and the infection has proceeded to a great extent, in which case it is not wise to drive cocaine or chloretone into the pulp; nor, in fact, in any case where the infection has proceeded to such an extent that the medicine would likely drive the infection before it. If there is any doubt on that point, and there often is, it is wise to use either pure carbolic acid or carbolic acid and chloroform, which latter is supposed to add to the anesthetic effect and increase absorption, a supposition which I, from experience, very much question. Before using any pressure, even with carbolic acid, we should remove all the disintegrated pulp tissue, first mechanically by instruments, and then chemically by the use of sodium dioxid (and I may say, while passing, that sodium dioxid beats all the digesting agents that you can put into a pulp chamber, because its work is almost instantaneous and thorough), then, and not till then, use pressure. This, for two reasons: one to avoid inoculating healthy tissue or nearly healthy tissue with septic matter, and the other because carbolic acid or any other agent used for this purpose will act better when placed in contact with live tissue so far at least as the anesthetic effect is concerned.

The foregoing procedure may be practised so long as any live pulp remains to close the apical foramen or foramina, as the case may be.

After the pulp has been thoroughly devitalized and incident-

ally disinfected by the carbolic acid, remove with drills all the affected dentine in the pulp cavity proper, and wash it out; extract the remaining portion of dead pulp as far as possible with a broach, after which you exclude the moisture either by napkins or by rubber dam, preferably by napkins. Our next step is to be sure that all infection and all particles of the dead pulp are removed. This we accomplish by the use of fluid sodium dioxid, followed by sulphuric acid. However, it is not always necessary to treat with sodium dioxid and sulphuric acid; if the infection did not extend far into the root (and you can always tell by observing where you found the pulp alive), it is not necessary to take further precautions than mechanical cleaning, provided you use the proper material for filling the root canals with, and I believe with the conditions I have named, and with the amount of treatment I have described as being given, that gutta-percha is not the proper filling material to use. There are two and perhaps more materials which may, however, be advantageously used, one is oxychloride of zinc, and the other is zinc phosphate and creosote.

Oxychloride is all right from the dentists' point of view, perhaps, but in many cases it makes the tooth exceedingly sore for quite a long time, in fact, so sore that the patient sometimes will beg of you to remove the tooth.

Zinc phosphate and creosote, on the other hand, although it always hurts to a slight degree during the operation of inserting, does not cause any pain afterwards to speak of.

The method of inserting it I may as well go into while I am on the subject, because it is part of my method, and it will save me describing it later on.

Place on your slab enough powder (Caulk's Diamond cement powder preferred) to fill the cavity and canals, and mix with it enough creosote to make a rather thin paste, then place near it enough of the cement fluid to make a creamy mixture. Now, having gotten your tooth and canals dried out, and protected by napkins, moisten the canals with creosote, then pump into them with a smooth, small, blunt nerve broach your mixed cement till you have the canals as full as you can. By that time the cement will have started to stiffen slightly. You may make your mixture stiffer by adding more powder if you desire. Fill the cavity nearly full, and with a large burnisher and soft rubber force the cement and creosote into the roots, and even into the tubules if you can. Wipe out the cavity with a pledget of cotton dipped in water, and then with root canal fillers press home the cement, making sure that the pressure from the soft rubber was evenly distributed. It is well in any event to try the roots separately if there are more than one.

This method insures the injection of an antiseptic material into canals so small that a broach will not reach into them.



We will now suppose that the pulp has been devitalized for some time and has probably become infected to nearly, if not quite, its entire length, but has not become entirely broken up. We in this case remove the pulp tissue as well as we can with a broach. Then insert into the root canals a fluid solution of sodium dioxid, recently made; after leaving it there for a few minutes, dry out and apply a fresh supply. Again absorb partly and apply sulphuric acid, which will cause an effervescence, and all the contents may be removed by it and by washing. Our next step is to apply 50 per cent.  $\text{H}_2\text{SO}_4$ , or even a stronger solution, forcing it well up into the canals, and it, by its affinity for water, will reach further than we can readily force it.

This sulphuric acid acts in more than one way; it is a great germicide, and does good work as such; not only that, but it acts on the lime-salts of the tooth tissue, and enlarges the canals to such an extent that we have a much easier time in filling them. Now we wash out the sulphuric acid and fill by using creosote and zinc phosphate under pressure, in which case we force a permanently antiseptic filling into the roots, and one which you cannot remove. I don't believe you should have to remove a root filling once you have inserted it.

Now, Mr. Chairman, this is as far as I can conscientiously advocate immediate root filling, and certainly as far as I ever go in my practice.

The next point I take up is the immediate treatment of roots, for which purpose we will suppose a tooth has become devitalized and the pulp becomes infected and all broken up, in fact, the pulp chamber and the pulp canals are filled with a mass of infection, but the pulp chamber may not have been opened into as yet. What is the proper procedure? Well, perhaps, I differ from the majority of my hearers when I most emphatically advise the immediate drying out of the chamber and canals, as far as possible, and after they are dried out with cotton wrapped properly on a broach, put in a dressing of pure carbolic acid, *i.e.*, as pure as it can be had, and stay fluid at the ordinary temperature, and leave it for twenty-four hours. I am well aware that if a man attempted to follow the foregoing advice, and did not know how to properly wind a broach he would get into trouble. Therefore, a word here with regard to winding a broach may not be out of place.

In the first place, the broach must be fine and pointed and soft; the very point must be covered with cotton, and the cotton must tightly adhere to the broach, and must not extend at all beyond the end of the broach, and must be wound around the broach so sparingly that the size of the broach is not perceptibly increased.

If after winding the broaches properly we dry the canals as far as we can get into them, and put in a dressing of carbolic

acid, we will never have any trouble in the way of "swelling of the face" the next day. No other medicine that I know of will answer the purpose, except perhaps sulphuric acid, if we could get it into the end of the root in anything like a pure state, which I have reason to doubt. You will recognize the fact that I have said nothing about Gates-Glidden or any other root canal drills in this connection. I do not use them in the first treatment of these canals.

Why is carbolic acid more efficient in such cases? For several reasons. Carbolic acid has an affinity for warm water, more than any of the essential oils, in fact, essential oils will not diffuse readily in water. It is very difficult to get an aqueous solution of, for example, oil of cassia, one of the most powerful of the essential oils, and one which might be of some use if it were possible to get a strong aqueous solution of it. Carbolic acid is one of the very strongest disinfectants, and by some of the investigators considered one of the powerful germicides, and it has the opportunity of penetrating into every part of the apical space on account of its affinity for moisture, and of disinfecting that space if infection has reached that far; and, leaving pressure out of the question, carbolic acid will not penetrate very far beyond the infected area, on account of its escharotic quality. It also forms an antiseptic coagulum with albumen.

Carbolic acid uses are not altogether understood and sometimes it is decried where there is really a misunderstanding of its powers, and an effort made to make it perform a function that it is not intended for. There are a great many different grades of carbolic acid sold in the market, and, of course, different results can be obtained from each grade, but practically only different in degree. When carbolic acid in the pure state is placed on the skin, little harm is done if the skin is dry, but if the skin is wet then an eschar is immediately formed, that is, an action takes place which destroys the skin and destroys the carbolic acid, limiting the action of the acid by the destruction of the acid, not alone by the destruction of the skin, or, rather, by the forming of the eschar. Now this is important to us as dentists. If we use carbolic acid in treating chronic abscesses with fistulas, and I may say that I do use carbolic acid exclusively in such cases, I make a mixture of carbolic acid and water at least 50 per cent. pure, and after having syringed out the abscess with water in order to note how large in extent the abscess is, so that I run no danger of injecting the antrum with 50 per cent. carbolic acid. After determining the size of the abscess, I protect the mucous membrane of the mouth with absorbent cotton, which has been dipped in water or alcohol and squeezed out, so that it is practically dry, and then syringe carbolic acid, at least 50 per cent. strong, right through the tooth, and out the fistula into the absorbent cotton which you have had placed to receive it. Remove the cotton, and replace it by some more, and syringe again with water.



Now, so far as the abscess is concerned, you could fill the root immediately, but sometimes the dentine in the root needs treatment to put it in a healthy condition, and in fact this is nearly always the case. When you remove the cause, the disease will disappear, and by removing the contents of the abscess and burning the walls of the abscess so that new tissue will be formed and disinfect the root canal, you remove the cause most effectually and permanently, unless the end of the root has become corroded, in which case the sooner the root is properly filled and the end smoothed off through an incision through the gum and alveolus, the better for dentist and patient. Now, we will return to the action of carbolic acid in the root.

It is generally, I think almost universally, asserted that carbolic acid by coagulating albumen restricts its own action in an infected tooth. Now, sir, I must most emphatically disagree with and contradict that assertion. Clinical experience first taught me that that teaching was false, and in order to demonstrate my belief I carried on some experiments with egg albumen and carbolic acid, which proved to my satisfaction that the teaching is wrong. I made different solutions of albumen and water ranging from pure albumen to 10 per cent. albumen in  $H_2O$ , and I find that in every case the carbolic acid pure will penetrate the coagula made with the albumen. I also find that with pure albumen the process is slower than when water dilutes the albumen. I made a great many tests and found that as soon as you mixed water with albumen your carbolic acid penetrated slowly as far as the mixture extended. When the mixture was first placed on the carbolic acid it coagulated to the depth of a 1-64th of an inch, in one hour had extended to a 1-32nd, and so on till in twenty-four hours the carbolic acid had extended through the whole distance of mixture which was about an inch.

You might say, Why add water? For this reason: When micro-organisms get to work in the pulp of a tooth, they convert that pulp into gas and water and a certain amount of albumen is nearly, if not always, left. Therefore we have never in an infected root pure albumen, but a mixture of albumen, water, gas, micro-organisms, and sometimes protoplasm.

Now, sir, there is just one more condition to which I intend to refer, and that is that condition of the tooth when the pulp has died, and has turned into a watery mass, as far as we can tell, entirely fluid, but has not become infected. This may occur in a tooth in which the pulp has died from a shock, or it may be that some time we are removing an old root filling and find that the pulp has not all been devitalized and removed, or perhaps the filling did not extend far enough in the root, and a serum found its way in there. I have come across a few cases, very few, however, in which the contents of the canal was not a fluid, in fact the canal was fairly dry. They gave no trouble.

How do we proceed in such cases, whether dry or moist contents? Just exactly the same as before. Dry out the canals if the canals are moist and large enough to be dried out, and the great majority of those cases I have met with have been in the anterior teeth, in which the canals are large enough to insert a broach, if small enough and properly wound, and, of course, pointed. After having dried them out, insert carbolic acid. If you have free access to the canals, and can get readily to the end of the root as you often can, particularly in those roots which have been partly filled before, you may with safety fill the roots at the first sitting. Provided you get them dry.

Now, why is it possible to treat those teeth which have been the source of a great deal of annoyance to some of us in this rapid, and as some would say, "reckless way"? Let us consider the conditions for a moment. Here we have a tooth surrounded by tissue of a softer nature with a pulp canal running right through the apical foramen, filled with fluid, either septic or not, as the case may be, and when we insert a broach not as large as the canal with absorbent cotton wound around it, the cotton draws part of the fluid out, and the next broach draws more out, and so on till nearly all the contents have been removed, leaving only a small amount of fluid, which has affinity for carbolic acid remaining, and you place in contact with it about four times its volume of carbolic acid, the result must be that the carbolic acid will be drawn even through the foramen and extend as far as the fluid extends, coagulating it, consequently no micro-organism can thrive in such environment.

Of course the amount of septic fluid which you could force through the foramen, and into the tissue by gross carelessness or indifference, if septic fluid had not already passed through, might be greater than your germicide could cope with; but you would have to use quite an amount of force, because in a tooth where the tissues have not been disturbed around the apex they lie very closely to the tooth structure; on the other hand, if septic poison has passed through the foramen prior to your operation there will be protection formed by nature, and the poison will be encysted, consequently held in a sac.

To support the above theory regarding immediate treatment I have twelve years' unbroken, successful experience.

## DISCUSSION.

Before Toronto Dental Society.

A. E. WEBSTER (opening the discussion).—Very rarely have I heard a paper in which I was more in accord with some of the views expressed and more opposed to others. I thought from the little skirmish we had on this subject at the close of the last meeting that I would not be willing to agree with the essayist in any of his views on this subject but I find that most of our differences were misunderstandings.



The pathological conditions described and the treatment of each is fairly clear and to the point. The technique is good, and could not be said to be reckless, but rather in some cases based upon a wrong premise. While the procedure of some operators might be in some respects different, yet there are the same general principles aimed at: under no circumstance force septic matter through the apical foramen. The essayist avoids this in two ways, and yet removes the contents of the canal (1) by careful technique, never putting pressure on a canal filled with fluid, aiming to withdraw the contents by capillary attraction; (2) by disinfecting the contents, so that in the event of any passing through the apex an infection will not occur, though there may be some irritation from toxins or toxalbumins.

With these propositions as gathered from the essay just read I am in full accord. The technique of handling a partially devitalized pulp is good.

The selecting of a fluid disinfecting root-canal filling for such a case is all right, but I am not sure that either zinc chloride or zinc phosphate is the best. The essayist admits that zinc chloride is irritating, and he cannot deny but zinc phosphate is also irritating, unless, perhaps, the creosote prevents irritation, which is very doubtful indeed. There is no doubt at all but root fillings for fine canals must be fluid when inserted. The technique of how to do this operation is good; the method is efficient. The essayist's views on the extirpation of an infected living or partly dead pulp and the immediate filling of the canals are in accordance with the practice of most dentists. There are conditions, however, in which it might not be wise to immediately fill a root after the extirpation of a devitalized pulp, though it be done under aseptic precautions. If the foramen be large or hemorrhage excessive, or dryness impossible for any reason, it is better in such cases to seal a mild antiseptic in the canal for a day or so, to give time for scar tissue to form to cover the tissue at the apex.

That portion of the essay styled immediate treatment of infected pulp canals deserves careful consideration. It is in this department of dental practice that there are many misfortunes. It is very difficult to make a differential diagnosis between a putrescent pulp pure and simple and one complicated with a blind abscess. There may be a blind abscess just on the verge of becoming an acute inflammation. The dentist opens into the pulp chamber, in doing which he jars or in some way weakens the resistance of the tissues around the apex, without even attempting to remove the contents of the chamber. There is developed an acute peridontitis, followed by an osteomyelitis. This sudden inflammation often follows the insertion of a filling in a pulpless tooth, where the chamber has not been opened for years. Such an attack is said to be due to lowered resistance, because

of the operating or jarring of the weakened tissues, or in the case where the pulp chamber has been opened, to an abundant supply of oxygen, which some organisms require for active growth. Where this condition exists (I mean a chronic blind abscess, on the verge of becoming acute, on account of the reasons above stated), no amount of the immediate root treatment as detailed by the essayist, can be effective. The drug does not reach the abscess cavity.

Because the essayist does not use a drill to enlarge the canals at the first treatment not a large quantity of antiseptic will reach the seat of infection. The essayist would doubtless have discussed this condition if it had not been for fear of making his paper too long.

In uncomplicated cases of putrescent pulps pure and simple when no swelling, soreness or pain has occurred since the death of the pulp, the essayist's mechanical treatment is above criticism. He recognizes full well the dangers of forcing infectious matter through the end of the root. To avoid this he lays great stress, and rightly so, on carefully winding the cotton on the broach, removing the fluid contents of the canal by absorption rather than by wiping it out. It is stated that the essayist advises the clearing of a putrescent canal to the end at the first sitting. To those who may imagine that a putrescent canal can be cleaned out to the end at one sitting without forcing any of the contents beyond the apex, I wish to say that it is almost if not wholly impossible. Experiments in this direction have been conducted in the bacteriological laboratory of the Royal College of Dental Surgeons, and in every case infectious material was forced through the end of the root of the recently extracted putrescent tooth canal, and an infection occurred in the media beyond. The exact technique of how these experiments were made need not now be described, but the results were conclusive. They were made by an operator who believed it could be done. Then, if a putrescent canal is cleaned out to the end at one sitting, and no infection occurs, reliance must be in the resistance of the tissues to infection, the non-virulence of the infection, and upon disinfectants. Inasmuch as the resistance to infection and the non-virulence of the organisms, and the efficiency of immediate disinfection cannot be depended upon, it is wise in the majority of cases to seal a disinfectant into such canals with oxychloride of zinc, and at the expiration of a few days remove the remaining contents of the canals. Even though the contents of a canal may be sterilized, yet if any of it be forced through an apex, a soreness in the regions may supervene, owing to toxalbumins which are present in some dead organisms. Such a soreness will not go on to suppuration unless afterwards infected.

The efficiency of carbolic acid as an immediate or lasting disinfectant, its solubility in water and its power to permeate its



coagulum are subjects worth consideration because the essayist's kite is floated on this drug. Not being a chemist nor yet a therapist, I approach the discussion of this drug with diffidence, but the views expressed are so at variance with that of known authorities, I would not have done my duty if the subject were not opened for discussion. Pure carbolic acid will not destroy many organisms of the mouth in less than twenty minutes, and if they are at all imbedded in an albuminoid covering it will take still longer. This statement is not a guess, nor copied from some text-book which was copied from another, but is based on actual experiments, which have been made again and again in our bacteriological laboratory. Now, if the immediate disinfections mentioned did not last thirty minutes at least, a great deal must have been left for nature to take care of. True, the root filling may do some disinfecting, but phosphate of zinc, which is a barrier to neither moisture nor to bacteria, leaves a lot for the creosote to do. The tubuli of the dentine could not possibly have been disinfected in the few minutes' application of carbolic acid. In the next place, carbolic acid has no permanent disinfecting power. In the presence of albumen or fluid its potency as a disinfectant is lost in a very few days. I venture the statement that in the cases referred to in the essay, where carbolic acid is sealed in a canal, if it be left four or five days re-infection will have occurred, unless the sealing were oxychloride. To compare the efficiency of carbolic acid and oil of cloves as disinfectants and antiseptics, let me cite a case in point. In 1893, when we had a large supply of extracted teeth on hand in glass gem jars, it was desired to soak the teeth in water. Each jar was filled with a strong solution of carbolic acid in water, and the cover put on. Within three weeks infection had occurred in every jar. The odor was so penetrating that the whole College building was permeated. This solution was poured off and the jars refilled with water, and to each jar was added about a drachm of oil of cloves. Within a few days the foul odor was gone, and to-day, after the lapse of over ten years, these teeth are in as wholesome a condition as they could possibly be.

There is no authority out of six or seven that I looked up which says carbolic acid has an affinity for water, except perhaps the crystals, which immediately take up water and become a liquid when opportunity affords; but, further than this, there is no affinity, not even a free solubility, and as the essayist uses the fluid there is no affinity to assist in getting the drug to permeate. A drop of carbolic acid will remain undissolved in a glass of water for hours. The very strongest solution of carbolic acid that can be made is 15 per cent., all other proportions are mixtures. Then in those cases where water is left in a root canal, the strongest solution that can be formed with the pure carbolic

acid is 15 per cent., which is not a very powerful disinfectant, and besides, it would take more than the few minutes spent in the treating of a root canal to have this solution formed. Hence, the fluid at the end of the canal, if it be water, is not converted into a 15 per cent. solution, nor is it permeated. But is the fluid remaining in a canal simply water? Is there not something more than water. It is certainly an albuminoid substance containing water; the detritus of the dead pulp is present. As soon as carbolic acid comes in contact with albumen coagulation occurs, and, according to many authorities, this coagulum is a barrier to further progress of the acid. The essayist says that this condition exists when carbolic acid comes in contact with living tissue, but forgets that if there be any barrier in a coagulum that it will be formed whether the albumen be of living or of dead tissue. It matters not, albumen is albumen, and is coagulated by carbolic, and if it forms a barrier to its further progress, then the contents of an abscess beyond the end of a root cannot be disinfected by placing carbolic acid in the root canal; and what is a still further objection to carbolic acid in such pulpless teeth is the fact that a discoloration of the crowns of the teeth so treated almost certainly occurs, which is believed to be on account of its coagulating properties.

C. E. LENNOX said that there was often a difference between theory and practice. While Dr. Webster tried to show theoretically that certain things were impossible, yet his clinical experience taught him that Dr. McDonagh was correct in his contention that putrescent roots should be immediately treated, and that carbolic acid was the proper disinfectant to use.

DR. WILKINSON complimented the essayist for boldly expressing views which were not ordinarily held by the majority. It was his opinion that it was not always safe to immediately treat or fill root canals which were putrescent.

DR. PRIMROSE.—Although not familiar with the condition in particular about the teeth, yet he thought he had a fair grasp of infection and disinfection. He thought the remarks of Dr. Webster *re* carbolic acid were much like slighting remarks about the Bible. He pointed out that surgeons before heat disinfection always relied upon a 5 per cent. solution of carbolic acid to disinfect instruments. Thirty minutes was long enough. Also a weak solution of carbolic acid a better disinfectant and generally more penetrating than full strength. Large abscess cavities may be swabed, and with pure carbolic acid, with less likelihood of general toxic symptoms than if a 5 per cent. solution were used.

J. B. WILLMOTT took the ground that inasmuch as it was impossible to foretell whether the infection extended beyond the apex of an infected root canal or not, that it was always wise to treat all infected roots of teeth as if an abscess existed at the



end of the root. By doing this there was less danger of starting up an acute inflammation. He also stated that carbolic acid was not the best drug to disinfect a canal or the abscess sac beyond. It defeated its own object by coagulating the albumen.

DR. CLARK stated that clinical experience was not a safe foundation in which to put our trust. He gave as an example the good clinical experiences many had with amalgams previous to Dr. Black's experiments; and yet, since then, much improvement has been made and much better results attained. Dr. Clark said that 5 per cent. was about as strong a solution of carbolic acid as could be made.

DR. McDONAGH (closing discussion) said that in twelve years' experience he did not have a failure in treating infected root canals in the manner described. Immediate treatment to the end of the root was the only safe procedure and carbolic acid was the proper drug. To disinfect the tubuli of the dentine oil of cinnamon was preferable to carbolic. The coagulating properties of Merck's creosote were illustrated in egg albumen.

THE PRESIDENT.—Merck's creosote is almost as strong a coagulant as carbolic acid, but beechwood creosote does not coagulate nearly so readily.

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## RETIRING PRESIDENT'S ADDRESS.

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BY H. A. CLARK, D.D.S., BROCKVILLE, ONT.

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Read before the Eastern Ontario Dental Society.

*Gentlemen of the Eastern Ontario Dental Society*,—One of the "privileges" of the President of this Association is to deliver a retiring address; he is the victim of circumstances. I trust, however, that what I have to say will not prove altogether uninteresting; at any rate, if you are bored it will not be for long, for my address will have one thing to recommend it, and that is, brevity.

First, let me heartily welcome you all to our town. I hope your visit will be of value to you, and not only from a professional standpoint, but also from a social one. The great advantages of these meetings is not so much what one learns from the papers and discussions of the sections, but from the personal intercourse to which such occasions give opportunity, the interchange of thought and ideas, and the estimating of our fellow-members, not only as dentists, but as men, who are doing all in their power to solve the different problems which are continually confronting us. Teachers met their old pupils, and students their old acquaintances.

In retiring from the position of President of this society, I wish to reiterate the thanks I felt and tried to express a year ago when you elected me to such a place of honor, a position accepted with many misgivings lest I should fail to maintain the dignity and efficiency of it, and which I am sure I should have utterly failed in, had I not secured the hearty co-operation and support of the members in general, and of this year's officers in particular. One man, be he ever so able, cannot make a success of an association in which there is no co-operation, and if there is one thing more than another which I wish to emphasize and impress upon my fellow-dentists, it is the necessity of everyone being willing to sacrifice both time and money to give, and to get, any assistance that will tend to develop our profession, of which there are yet many branches of dental science yet in its infancy, for instance, pyorrhea alveolaris, its cause and cure; etiology of erosion, and many others.

A retrospect of the year which we are now closing must convince even the most sceptical that, through the medium of our conventions, through the give and take system of effort and progress, through the columns of our journals, and through the unsatisfied desire to investigate, to broaden, and to improve, there have been fewer failures and more successes, no retrograde steps, and possibly more lengthy forward strides, than in any previous year in the history of dentistry. And here I might say that we as Canadians should be extremely proud of our DOMINION DENTAL JOURNAL, which has now attained a foremost rank among the periodicals now published. It is, indeed, the one great medium by which knowledge can be spread to the profession of the good work that is now being done in the different parts of the world.

With the advantages we now possess in scientific appliances, literature, and mutual aids at conventions, and such like places, there seems to be no plausible reason why any dentist who loves his profession, and who wishes to make of it one of the foremost, if not the foremost, should fall behind in the race, and if he refuses to benefit from what is within his reach, and will not follow, and even try to lead, in the progress that is being made on every hand, there is no alternative for him but to linger in the rear.

Since we last met, I regret to be obliged to chronicle the ravages which death has made in our ranks. I refer to Dr. Brace, of Brockville, one of the most energetic and faithful members; also Dr. Sanderson, of Ottawa, who was cut off in the beginning of his professional career. Let us hope that they have found eternal peace and happiness justly rewarding them for duty faithfully performed.



## THE CONSTRUCTION AND SETTING OF GOLD-BACKED CROWNS.

BY W. J. F. VAN ALLEN, D.D.S., CAMDEN, N.Y.

Read before the Eastern Ontario Dental Society.

The subject of crown work has been seemingly so thoroughly discussed through our journals and elsewhere, that it does seem presumptuous for me to attempt anything along this line. Since "There is nothing new under the sun," I shall, therefore, not attempt anything new.

In this advanced age of dental art and operation, there are many methods of crowning, especially the anterior teeth and my thought at this time will be to put together parts of some of the different modes, so we will consider, in this brief paper, the construction and setting of a gold-backed crown. We will keep in our mind's eye a superior central incisor. This will not be a Richmond crown, but a modification, as perhaps, all gold-backed crowns are "chips from the old block," or sons of the same father. Our first act, then, will be to excise the remains of the natural crown. This is done very nicely with a thin-edged carborundum disc or wheel, as deep as possible, and finishing with a small cross-cut fissure drill, root not to be cut too close to gum line so that with carborundum or corundum wheel the root may be carefully and properly shaped, cutting slightly under gum both labially and lingually, leaving centre high, making it of a blunt-wedge shape. Now this affords us a longer pin, which in some cases proves very desirable, and not only this advantage, but answers also for a shoulder, consequently doing away with full band as in Richmond.

The writer uses iridio-platinum instead of pure platinum for posts of square wire instead of round. The iridio-platinum is much stiffer and will not bend easily when stress is brought to bear upon it from either labial or lingual direction, which would naturally be the case, as laterally it would be protected by the adjoining teeth. Platinum No. 36 gauge is used to cover end of root which is burnished down to same.

A sharp, round instrument is used to punch a small hole over the opening into the root, followed by the rounded point of the square post metal, and by gradually forcing same through the thin platinum it adjusts itself, which is then withdrawn. The square post in round hole in platinum enables it to be withdrawn without displacement. This is held over the alcohol lamp or gas jet and tacked with solder. The short end is placed in a vice, and with a fine metal saw is cut off close to platinum. It is again replaced in root and burnished perfectly and trimmed to size of root. The wheel is again used to cut platinum covering

back a very little from labial edge so that the facing may be perfectly fitted.

The facing is ground from cutting edge back about a thirty-second of an inch on the under side, bringing it to about the thickness of a very blunt knife edge, also thinning the cervical portion somewhat so that the backing will not interfere with the root covering when making the adjustment; 22k gold is used for the backing, unless you wish to obtain a blue cast to the porcelain, then platinum is used instead. The facing is placed upon the gold plate and pressed sufficiently to indicate by the marking of the pins where to punch the holes. This is done with a sharp, round-pointed instrument, the holes made just large enough to admit the pins. The facing is placed and the pins bent, not cut off, and with knife not too sharp, the edge of metal is pressed back closely around the pins. This prevents the borax from getting through on the porcelain while soldering, which is sometimes the cause of breakage. When the holes for the pins are cut through with pin-punch, the piece of metal is cut away, and this cannot be done if a pointed punch be used.

The backing metal is bent or slightly burnished to facing, which is easily done if previously annealed. With gold shears it is then cut from the sheet, allowing it to come well up on cutting edge. It is then burnished close to edge all around to prevent the investment material or borax from getting between backing and the porcelain. The root covering and facing are now fastened together with tough wax about the relation the operator thinks right and placed upon the root, and with a sharp pointed, curved instrument in the left hand, holding post and covering to place firmly, the wax is still soft enough that the facing may be accurately adjusted with the right hand. It is now withdrawn intact, and ready for investing.

There are several good combinations to use for investing material. We find that about three parts plaster and two parts pumice with a little asbestos fibre, makes a good strong investment, and not liable to crack in heating. The asbestos may not be such an important factor, but its fibrous nature helps to bind the other ingredients together. It is also incombustible, and a poor conductor of heat, and therefore serves a good purpose.

After it has set sufficiently hard to handle, it should be trimmed to the same thickness all around, a quarter of an inch is thick enough, as any great amount is of no benefit, and sometimes prevents the proper heating of the porcelain. The wax is removed, and the pins and exposed metal treated with a coating of borax, which is made about the consistency of cream. If too thin, it is liable to creep down through the pin-holes, and, in heating, attach itself to the porcelain, and may cause trouble. If too thick, there is a possibility that all the parts may not be reached, as the obscure places, such as between the backing and



root covering, is where we want the first pieces of solder to flow. Very little borax is really needed for flux. The dry, powdered, or calcined borax may be used by dropping or sifting from the fingers before heating, and the excess blown away, and still enough be retained to answer the purpose. The solder is cut in small pieces, about an eighth of an inch square, dipped in the borax mixture, the excess scraped off and allowed to dry, which takes but a minute.

A soldering block concaved to hold a portion of charcoal is very convenient for heating the invested crown preparatory to soldering. Imbed the metal part in the charcoal, thus leaving the porcelain on top. The heat striking that portion of the work first, is conducted to the porcelain, and allowed to expand before the pins are heated too much. If this is not done, and the metal parts heated before the porcelain, the pins expand and act as wedges, and are apt to check the facing. When the investment is heated to a red heat, the work is then turned over, and metal parts exposed. Any time after the borax begins to fuse, the flame may be put on the backing, and heated high enough to fuse the solder, which should be put on one piece at a time.

The solder will flow to the hottest point, all things being equal, but it will not flow much uphill, so it is well to tip the work, also to have a leader convenient, as the solder may then be led about where it is wanted. It sometimes needs coaxing so as to cover the cutting edge well. When the soldering is completed, the piece is again turned over and allowed to cool gradually. It is now taken to engine, and stoned and sand-papered, finally finished on brush wheel, and is ready for setting.

The last act of crown work is not the least important. The general use of oxyphosphate for setting crowns does not make it all that can be desired for that purpose. Gutta-percha, used as it is now, makes a valuable medium. Possessing qualities such as non-solubility and non-conductivity, it is also elastic, which may not add so much to the comfort of the wearer, but is a protection to the facing acting as a cushion in mastication. Its easy removal for repairs by heating a pair of heavy pliers, and holding against the crown, the heat is carried to the pin, the gutta-percha is softened, and the crown removed—this is another feature in favor of its use.

The different kinds have been experimented with. The ordinary red base-plate has proven very desirable because of its pliability when heated, and its rigidity when cool. Its natural solvent seems to be eucalyptol, which softens and lubricates the surface. Chloroform may be used, but its rapid evaporation is somewhat against it. We will presume that the root is all reamed, treated, and ready for setting the crown. The pin is roughened and coated with a solution of gutta-percha dissolved in chloroform or eucalyptol. A small piece of warmed gutta-

percha is then wrapped around the pin, and, with the fingers, moulding it to about the size of canal, it is allowed to press up against the end of tooth so that the end of root will be protected when set. The pin thus treated, is ready to try in the root. It is then laid upon a gutta-percha heating apparatus, made for the purpose (a soap-stone over alcohol lamp), and the root is kept wet with fluids of the mouth, which permits of its ready removal during the trial stage. When sufficiently warm, it is held in the fingers and pressed into the root, removed, and surplus gutta-percha cut away with sharp knife. It is again warmed, and pressed nearly into position.

The root is now protected by napkin, and thoroughly dried with alcohol and hot air. The crown being well warmed on heater, when all is ready for the final setting, the face of root, canal, and gutta-percha on the pin, are all moistened with the eucalyptol and pressed quickly into place. Another good way to set the crown is to cover roughened pin well with chloroform, and then proceed as with cement. It can be heated and removed in the same way.

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## PROFESSIONAL HONESTY.

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BY HARRY GRAHAM, D.D.S., OTTAWA.

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Read before the Eastern Ontario Dental Society.

By professional honesty I do not mean the mere commercial quality that impels a man to refrain from cheating his neighbor, and to pay his just debts; I mean that higher and nobler spirit which makes the true professional man scrupulous in everything touching professional honor and respect. And at the outset let me say that it pays the dental practitioner, "whether he be young or old," rich or poor, to adhere to ethical principles, and unflinching honesty of action. This may seem hard to the young dentist, who is compelled to wait patiently in his office, listening for the footsteps of the coming patient, while the false element of the profession has his office constantly crowded with patients. The young dentist, who is just starting out in life, often wonders if it really pays to live up to the highest standard of professional morality. Why not turn out cheap work for quick return? Why not extract those teeth which rational practice would save? Why not do a lot of dishonest things as long as we make money, and our patients are none the wiser, and by and by come back to the ranks of respectability? If we commence our career as quacks, we shall find it an absolute impossibility to rise to those heights which the true elements of the profession have honestly



reached, even should we desire to do so, because the public have become accustomed to judge us by our associates, and will not accept any other estimate of us. There are certain essential elements of character which are necessary to a successful dental practice, and by successful I mean that mode of dental practice which preserves the greatest number of teeth in a comfortable and useful condition, and relieves humanity of the greatest amount of suffering, and lifts the dentist above the lower pursuits of a money grabber.

Not long ago a conscientious member of the medical profession told me of having been called into a dental office for the purpose of administering an anesthetic to a young lady, and, upon inquiring as to the number of teeth to be removed, he was informed that all the upper teeth were diseased, and must be removed. After the operation, the physician was shocked to note that out of all the teeth extracted, only four of the anterior ones were decayed, there being nine or ten perfectly sound teeth lying upon the floor. The physician received all kinds of abuse from the dentist when he explained to him his regret for having administered an anesthetic to perform such a criminal operation in extracting so many perfect organs of mastication, which were intended to serve the individual to the end of life. Let us, then, strive "to walk the straight and narrow path" of professional rectitude, and as far as possible to impress upon the mind of every student the necessity of honest and ethical conduct, and to look to gentlemen of high standing as exemplars, guides, and friends. To our conscientious professional brother, we owe a great deal, and should always be respectful when respect is possible. We should ever be ready to say a kind word about him, as it will not injure us and it may help him, for I believe if we severely criticise the work of another dentist to a patient, it will do us more harm than the one so criticised, for we must all look back upon work we have performed, some time in our practice, with a great deal of humility. Let us, then, be charitable in criticisms, and generous in our praises of him who deserves them.

We should at all times refrain from deceiving our patients, unless it is for their benefit. Should we break a tooth in extracting, and be obliged to leave a piece of root in the jaw, if we lie, the chances are that when the patient discovers the falsehood, we will not only lose his confidence, but the patient himself as well. Cleanly environment is a fundamental principle of success. Washing of the hands and cleaning of the nails, and the sterilization of the instruments before touching a patient's mouth, and the same procedure afterwards, are imperative.

In the preparation of cavities for filling, we should strive to create the minimum amount of pain. It is false economy to use

dull instruments, for they perform the work so imperfectly, that the injury to practice is serious.

In conclusion, let me say that to our patients we owe the best that is in us, and he who gives freely his best services is certain to reap a rich reward, not only pecuniary, but in the respect and esteem of his profession, and in the gratitude of his patients. And no reward can be greater than that of the man who can look back at the close of a long life of professional activity, and see there nothing but honest work honestly done, high ideals carried out with dignity of thought and action, in spite of mistakes and disappointed failures.

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## NEGLECT OF CHILDREN'S TEMPORARY TEETH.

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BY G. M. HERMISTON, B.A., L.D.S., D.D.S., PICTON, ONT.

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Read before the Eastern Ontario Dental Society.

*Mr. President and Gentlemen,*—On invitation of your presiding officer, Dr. H. A. Clark, we are presenting this paper. The subject is one which has given us much concern for some time. To our minds nothing which so nearly borders on the criminal as the utter and wholesale neglect of children's temporary teeth, is left unpunished by civil law, and if in this paper we have made use of terms and phrases which appear somewhat homely believe me it is because the importance of the subject demands them and because a more refined diction would not have the desired force.

We wish to treat this subject from two different standpoints: First, we call your attention to the neglect, whether wilful or otherwise, of the parents or guardians. Many people live in a "sufficient unto the day is the evil thereof" style. They never seek to "trouble trouble until trouble troubles them." So long as the child enjoys its rest, and allows the parent to do the same, they give no thought for the morrow.

Now the question arises, Is the parent to blame? They screen themselves behind the easily-punctured excuses of, "I didn't know." "I thought they were temporary teeth, and that others would take their place when they were extracted." Gentlemen, surely ignorance is no excuse for any individual in this twentieth century. Were the truth, the whole truth, and nothing but the truth, known, many are wilfully negligent of the care of their children's teeth both temporary and permanent, because of the slight expense in connection with the professional care of them. Let us cite a case. About twelve months ago, a father and mother presented themselves with a puny, peevish



little girl of four years, to have a central incisor extracted. On examination, the essayist refused to extract the tooth. Why? True, there was an abscess present which was causing the child a good deal of discomfort, but in the set of twenty teeth eleven were quite disintegrated from the ravages of caries, several of them presenting chronic abscesses. What, in this particular instance, would extracting mean? A careful study of the case indicated that were extraction the rule, as fast as the teeth troubled the child, inside of six months eleven teeth would have been extracted, and others of the remaining nine fast becoming a prey to the relentless forceps. A child of four and a half years, with twelve to fifteen teeth extracted, two or three years to wait for any permanent ones to succeed them, and then only a few incisors with the four first permanent molars, four to five years to wait for bicuspid, should the child have the misfortune to live that long, which would not be altogether probable. Such is a history of many cases which are presented to us. Now, who among you will attempt to excuse such conditions? Because the parents are financially embarrassed shall they show such a lack of civilization—or shall we say, such a lack of barbarism, because such conditions are not so frequently found among the uncivilized?—or because they plead ignorance to the laws of sanitation and disinfection, are they to be excused? Emphatically no. People who have no knowledge of the care of children must either be made wise on this subject or else they should not attempt rearing a family. The laws of civilization, or of common decency, give no license for such rash carelessness. Since people will rear children, the only method would seem to be in education. Why has it not long ago been attempted? How inconsistent is humanity! Societies are formed for the prevention of cruelty to animals, while thousands of innocent, helpless children are being neglected, and not even given the thought and care of the dumb creatures which run the streets. Men are persecuted and fined by some of our zealous citizens for abusing horse or dog, and yet their zeal and energy might well be directed to the care of some of our unfortunate humanity. Thousands of dollars and much energy are annually spent among the heathen, while poor unfortunates at home are, at least, physically, in a much more serious condition. Such is the true picture of many hundreds of cases which are daily being presented to our profession.

We have in this, one of the most beautiful countries on earth, schools for teaching everything, it would seem, except how to make our race strong, healthy, and enduring. This is a noble mission for some philanthropic spirit. We have tried to show the needs of our poor little unfortunates. The importance of the subject must appeal to you all. Ignorance and miserliness would

seem to be the only two causes of such a deplorable condition. It is ours to cause the ignorant to be educated, and the miserly to be compelled to mitigate such evils. .

And now we come to the treatment of this subject from the second standpoint, viz., To what degree are we as practitioners responsible for such conditions? It is a law as old as society that those of superior knowledge shall render assistance and instruction to those who have been less fortunate. As practitioners, many of us have been negligent of the care of the temporary teeth of our little patients, even in the very small percentage of cases in which they have been presented, because the parents would not, or could not, remunerate us for our professional service, and, gentlemen, right here is where a professional man can, and should, lay deep and broad the foundation of a long and prosperous career.

Do a little missionary work beside your chair, and when some poor child is presented, be courteous and kind; do the child the best service possible, even should you get little or nothing for it, a little energy and money (because time is money to the professional man) spent in this way will do much good, perhaps as much as though your name should appear on the church reports credited with twenty-five or fifty dollars for foreign missions.

Now, *re* the cases which are not presented until in such a condition that the forceps is the only instrument with which you can treat them. Here is where previous education is necessary. It devolves upon us as a profession to devise some method of education, which shall be a part of our national educational system, by which the parent and the children alike shall be taught the duty they owe to themselves and to succeeding generations, by a wholesome and careful regard for the care of the oral cavity.

It would seem most pertinent that the dental profession in the scientific status to which it has attained, should now take steps to have such legislation enacted that scientific dental lectures should be delivered in every educational institution in the land and these at regular and frequent intervals. Dental education, in a general way, should form part of the curriculum, and should be in some way presented to the parents as well as to the children. Doubtless dental literature would do much service to ignorant humanity.

Meantime, I trust that every member of our profession will exert himself to impart such information at the chair as will enlighten the parents on this important subject. I trust also that influence will be brought to bear upon the legislature, such as will prevent much of the suffering and distortion of features of the children of our race. This will be for the laity, not for the



profession. We should at all times do our whole duty to humanity in a professional way. Be your best self at all times, encourage parents to present their children for examination every three or four months, and when they do attend for examination, be all patience and kindness, make both parents and children feel that you take a pleasure in ministering to their wants. Don't allow them to think that you are too busy, or too avaricious, to give them a moment of your time unless a goodly fee is forthcoming. The man who squeezes from his patient's purses all the money he can, and gives them only cold professional service in return, is not true to himself or just to his patients. Patience, sympathy, courtesy, and a seeming interest in their welfare are due to the patients from their practitioner.

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## DENTAL HYGIENE.

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BY R. M. ARMSTRONG, D.D.S., OTTAWA.

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Read before the Eastern Ontario Dental Society.

Dr. Marshall, in his late work on "The Principles and Practices of Operative Dentistry," says that cleanliness of the mouth and teeth is the greatest of all prophylactic measures which can be instituted against dental caries.

In regard to the above statement, I think we all agree. The public are not aware that the sanitary condition of the oral cavity means so much, and unless we, in our professional capacity, impress upon them the necessity of a hygienic condition, we neglect our proper duty. We shall consider this subject under two headings: (1) The duty of the dentist; (2) the duty of the patient. It is the dentist's duty to place the mouth in a thoroughly hygienic condition by removing all carious deposits, tartar, stains, etc., because, in doing this, we aid in the destruction of all micro-organisms, and their products, which are recognized to-day as the cause of dental caries. But the duty of the dentist does not terminate here. He must also instruct the patient to keep the oral cavity in that condition and, this being impossible, to return periodically, and allow the dentist to do so. In all cases, the patient should be advised to return to prove to him that his instructions have been intelligently carried out. The sanitary habits of our patients are more responsible for the failures of certain cases of our operations than our mechanical skill. In support of this, I would like to call your attention to any beautiful piece of work you have ever done. If that piece of work is inserted in the mouth of a patient who is a stranger to cleanliness, in a short time you will be called upon to renew it.

This state of affairs is not found in any special class of patients, but it exists among the rich and the poor, the refined and the ignorant. And the dentist who puts as high, or a higher estimate upon the sanitary habits of his patients than he does upon his own mechanical skill, will have the satisfaction of seeing his work last much longer than he who possesses just as much skill, regardless of the cleanliness of his patients.

If we are to reach the ideal in dentistry, we must not be content with merely repairing or removing damages done, but we must look farther, and carry out that axiom, that the highest aim of the healing art is not to cure disease, but to prevent it.

It is a recognized fact that the generation immediately preceding us had much better teeth than the present generation. Were the laws of cleanliness in regard to the teeth more respected by them? I do not think so. Why is it, then, that they had better teeth? One reason, I attribute, and the only one I shall touch upon in this paper, is that the food of to-day serves as a much better culture for the development of micro-organisms than did the food of the past generation.

The patient's duty consists in understanding that those instructions must be carried out in order to be compatible with the general health, and the necessity for the preservation of the teeth: that only by carrying out these instructions thoroughly and intelligently they can expect or hope for the condition that the dentist aims at; and that, after their oral cavity has been placed in the desired condition, tooth picks, silk floss, tooth brushes, and antiseptic washes, are the only gentle means by which it can be kept healthy.

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## ON THE PROPOSED DOMINION DENTAL LAW.

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BY M. G. McELHINNEY, D.D.S., OTTAWA.

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The subject of a Dominion Dental Law should not be allowed to drop. It is important that before the next meeting of the Canadian Dental Association every phase of the question shall have been examined, and a complete understanding of its merits and demerits arrived at. It is generally admitted theoretically that professional standards should be equalized throughout the Empire. It is reasonable to expect that Canada, the colony which we believe to be most advanced in our profession, should lead by the enactment of a general Canadian Dental Law. Why do we proceed so slowly towards its realization? There are several reasons adduced: First, that the various provincial standards



should approach as nearly as possible to the highest. This for various local reasons is a difficult object to attain; so difficult and so slow that it seems to be impossible

So widely is this reason entertained, more particularly by the more advanced and the academic branches of our profession, that it has passed unchallenged. Is it absolutely necessary to maintain the highest standard, with its attendant difficulties, in the face of the justice and pressing necessity of a Canadian dental standard? I say no. The social contract, written and unwritten, demands, and rightly so, that individual advantages should be sacrificed for the general good.

In our schools and colleges the requirements are based upon the average intellectual power of the students, and not upon the possibilities of the few possessing exceptional powers. To rush the work to suit two or three brilliant students would be unjust to the many who are really the more important element to the community at large. To attempt to make a Dominion dental standard that which can be attained only by the older, richer, and more populous provinces would be unjust to those other provinces which are less able to provide for the maintenance of such a standard. It would be even better to adopt the lowest standard, and trust to the inevitable laws of development to accomplish improvement all along the line. This extreme is not necessary; a reasonable standard, one possible of attainment without extraordinary effort on the part of any province, could be made to serve as a basis for Dominion legislation.

Such a standard for the possession of a license to practise need not prevent the foremost colleges from carrying on their work to the utmost limit of their power. The true idea of college education is developing; that college work is not merely a means by which to obtain a license, but is a means by which to attain that knowledge which will enable the practitioner to reach the right road to success.

There is not such a discrepancy between our various provincial standards that it would be necessary to adopt a general standard which would imperil the dignity and progress of our profession. The development of our educational institutions throughout the Dominion has reached such a plane that a standard far lower than any which we would be compelled to adopt, would compare favorably with those of most other nations.

The second objection is a selfish one, yet it could be read between the lines of the various utterances at the September meeting in Montreal. It was the underlying fear that the adoption of a reduced standard would cause an influx of low standard practitioners into those older and wealthier provinces heretofore protected by high standards. The profession of dentistry, like those of law and medicine, is a close corporation. The original

object of certain requirements for a license was the protection of the public from unskilled services. In the eyes of too many practitioners, the license is a protective measure to prevent overcrowding, and to safeguard the interests of members of the corporation. The tenor of much of our professional legislation is too plainly along those lines: Laws to prevent outsiders from poaching upon our preserves.

Let us look the matter squarely in the face, and examine it without fear or favor. The provinces of Ontario and Quebec are the only ones having dental colleges, and pride themselves upon their high standards. If the sole object of our protective legislation were the public good, it should be sufficient for a member of the profession from Ontario, in order to practise in Quebec, to show before the Quebec Board that he is duly qualified, and *vice versa*. Is it so? Not by any means. Instead of this a candidate from either province is required to spend a certain time, more or less, in pupilage or at college, in order to gain admittance to examination in the other province.

This I consider a purely protective and highly iniquitous requirement, the only object of which is to render the attainment of a license so difficult that few will attempt it. The present requirements are merely to protect the practitioners in each province from competition. This fear of competition is the keynote of the objection to a Dominion standard. This fear of competition is a very imposing bugaboo, which, stripped of its imaginary coverings, reveals a very small and altogether harmless scarecrow.

A practitioner of the first rank does not change his location frequently. When he does the circumstances are exceptional, and do not affect the profession at large. A practitioner of the first rank does not fear competition, because his reputation is too well established to suffer. The middle-grade practitioner is like the average in any other walk of life. He locates, succeeds fairly well, and grows into the community in which he lives. He is least likely to desire a change of location. The low class practitioner and the recent graduate are most likely to move about. Those who have failed in one place are not likely to succeed any better in another. They cannot seriously compete with established practitioners, and are those whom none need fear. As to the recent graduate, he has the long uphill struggle yet ahead, in all justice he should be allowed to begin the battle where and when he will, for the way is hard enough without the addition of artificial barriers. It is not likely that the interchange of recent graduates between the provinces would seriously affect the balance already established. There might be a gravitation of cheap jacks and advertisers towards the large cities. These individuals interfere with respectable practitioners about as much as pedlars

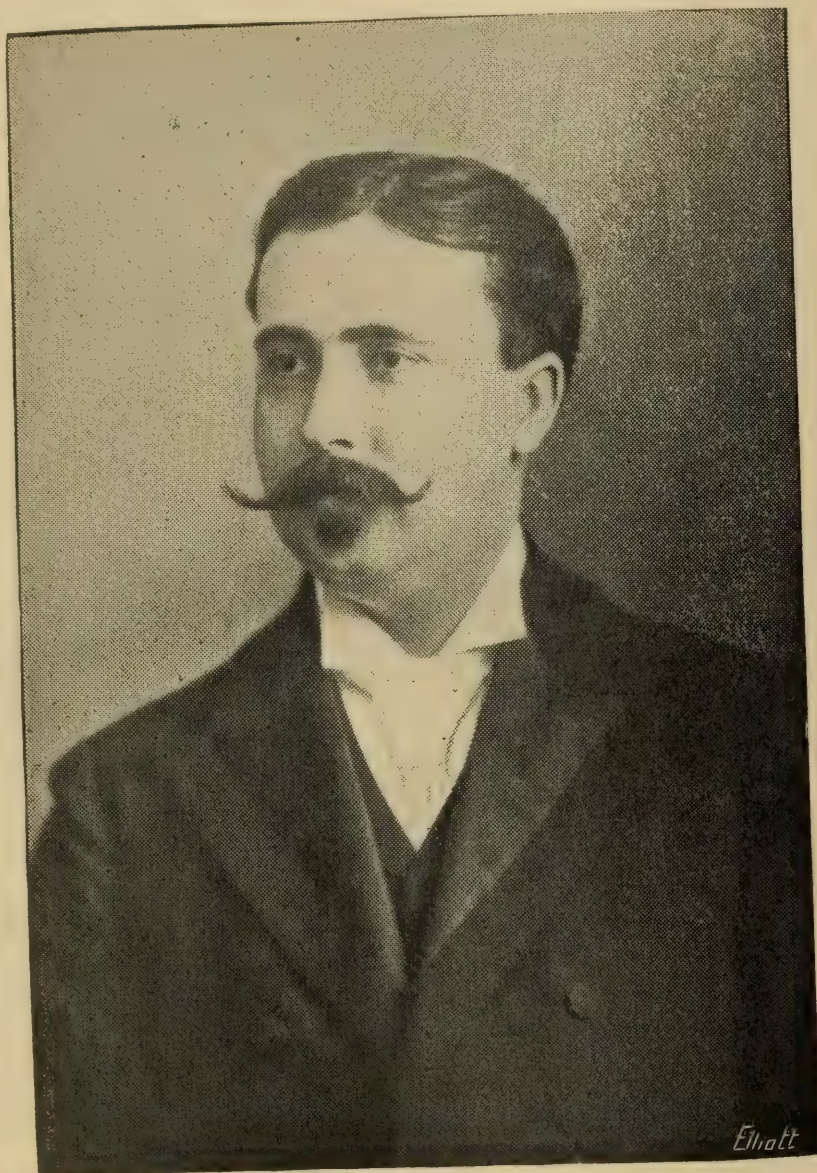


of brass jewellery interfere with Birks or Ryrie. Such a consideration as the fear of competition should be below the notice of a liberal profession.

The third objection is as familiar as it is invalid. In every society there is some member who greets each attempt at progress with the cry of, "It's unconstitutional." It is the fear of the infinitesimal mind. It is the objection of narrowness; it is the battle cry of mediocrity. Any organized society should possess a constitution—a constitution being a working standard which should be ever subject to new views of justice. If the proposed measure is a just one and conflicts with the constitution, then must the constitution be changed to suit it. Our antecedents have no right to hamper us by laws which, appearing right to them, may not be just to us. We know vastly better what is for our good than did the framers of the B.N.A. Act. It was magnificent, so was the *Great Eastern*. It was necessary; so was "Puffing Billy." It was man-made; it may be man-improved.

A fourth objection is that the single standard is premature. "Let us wait," said one speaker at the Montreal meeting; "until the time is ripe; let us not artificially force the course of our professional evolution." With all due respect, that gentleman has failed to grasp the idea of evolution. The cataclysm is as much a part of evolution as the laying down of aqueous rock, or the flow of the glacier, the revolution as truly as the slow constitutional development. To the student the words cataclysm and revolution are popular terms applied by superficial observers to that which becomes to them suddenly apparent. He knows that the causes have been at work for countless years, and that the catastrophe is but the falling of the ripe fruit of time. Every effort is a part of the process, and there is no such thing as forcing evolution. Life is short. Biennial meetings may come and go, and little be accomplished if we seize not each opportunity to forge ahead. In a few years we shall be out of the battle. To-day is ours, the future belongs to others. Our profession is a sacred trust. Every man who holds himself aloof from his professional confreres is a dead weight. The higher his attainments, the more he owes the profession which furnishes his opportunities. Let us do what we can on account, since we cannot hope to fully discharge our debt. The attainment of one standard is a noble national work. The results reach infinitely beyond the limits of our own profession. It is a challenge of progress to all others. It is an imminent possibility.

Ottawa, June, 1903.



EUDORE DUBEAU, D.D.S., L.D.S. MONTREAL.

Secretary of the Canadian Dental Association, 1902; Vice-President, 1903-4.



## Proceedings of Dental Societies

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### EASTERN ONTARIO DENTAL SOCIETY.

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The Eastern Ontario Dental Society held its twenty-fourth annual meeting in the Strathcona Hotel, Brockville, July 7th, 8th and 9th, 1903. A very attractive and well gotten up programme was issued some days before, with the result that there was a large attendance. The younger element of the profession, as is the case in all the societies in Ontario, was well represented, both on the programme and in attendance. On the evening of the first day a moonlight excursion was given to the visiting dentists by the resident dentists of Brockville. About forty ladies and the same number of gentlemen enjoyed the trip. There were three sessions of papers, and one of clinics. Dr. Mitchell, of Perth, presented some new designs in detachable porcelain facings. Dr. McElhinney's paper elicited a warm discussion on apprenticeship as a means of education. The Committee on Army Dental Corps reported, and was relieved of further duty.

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### THE WESTERN ONTARIO DENTAL ASSOCIATION.

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The second annual convention of the Western Ontario Dental Association was held in Chatham, June 3rd and July 1st, in the Oddfellows' Hall, Dr. A. W. Thornton in the chair. The attendance was good. The convention was opened by an address of welcome by Mayor McKeough, who discussed the many enterprises and attractions of the city of Chatham. He referred to many difficult cases of illness and surgery and those involving legal questions of importance, when specialists are often brought into the city from larger cities; but such has not been so in the dental profession of Chatham. They have superior dentists, which accounts for the condition.

In closing, Dr. McKeough said, "I would be glad if you would discover a means whereby a tooth might be extracted, a pulp destroyed without pain. Some years ago when Dr. Lennox practised here I was a daily occupant of his chair for eight or ten months, and although I have a very kindly affection for the venerable doctor, who has gone to his reward, yet I have some

very painful recollections of his art, so that if you can relieve the pain, as suggested, future generations will rise up and call you blessed."

At the close of the Mayor's address, Dr. McDonagh read the first paper.

The following officers were elected: President, J. Mills, Brantford; Vice-President, G. A. Bentley, London; Secretary, C. A. Snell, Essex Centre; Treasurer, E. C. Jones, Woodstock; Supervisor of Clinics, A. A. Babcock, Brantford. Executive Committee: Piper, London; Kennedy, St. Thomas; Revel, Windsor.

Next place of meeting, Brantford.

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## THE NATIONAL DENTAL ASSOCIATIONS.

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The National Dental Association meets at Asheville, N.C., July 28th to 31st, 1903. The National Association of Dental Faculties and the National Association of Dental Examiners meet at the same place, July 24th. The South-Eastern Passenger Association controlling the territory east of the Mississippi and south of the Ohio River, has granted a rate of one fare plus 25 cents for the round trip. This, combined with one and one-third fare from points in all other Passenger Associations' territory, will make the rate a very reasonable one for the entire trip, and should encourage a large attendance. These rates are good for all three of the National Associations, and tickets will be sold going on July 21st and 22nd, and July 25th and 26th, return limit August 2nd.

The place of meeting is reached only by the Southern Railway, and is the official route for the meetings. The Southern Railway connects with all territory in the U.S., has its own rail direct from St. Louis to Asheville, and parties desiring to secure accommodation for travel will do well to write Mr. C. A. Baird, District Pass. Agt., Southern Railway, 719 Olive St., St. Louis, Mo.

Asheville is a delightful place to visit in the summer. It is 2,000 feet above sea level. The heat is never uncomfortable, and the air is dry and bracing. Headquarters will be at Battery Park Hotel, a fine hostelry of 500 rooms, where reduced rates have been secured. Rooms can be reserved by writing to either D. C. Waddell, proprietor, or F. R. Darby, manager.



All reputable dental practitioners in the United States are cordially invited to be present, and aid in sustaining the representative association of the dental profession in America.

J. D. PATTERSON,  
*Chairman Ex. Com., National Dental Ass.*

Batavia, N.Y., June 29th, 1903.

*To the Members of the National Dental Association:*

GENTLEMEN,—Your Committee appointed at the last meeting of the Association, for the purpose of organizing the Fourth International Dental Congress, has proceeded in accordance with the resolution of appointment, and has taken this opportunity of acquainting the members with the work. Your committee has met, organized, and appointed various committees and sections, due notice of which has been, or will soon be, sent to those appointed. The Director of Congresses of the Universal Exposition at St. Louis, Mr. Howard J. Rogers, has appointed the members of your Committee the Organizing Committee on the part of the Exposition, and has also assisted, by advice and counsel, in the preliminary organization. As you are aware, the International Dental Federation has accepted the invitation of the National Association to participate in the Congress. Within the last few days, the British Dental Association has accepted the invitation of your committee on your behalf, to be our guests during the Congress. Invitations to societies in other countries have, or will soon be, extended. You will, therefore, observe that a good beginning has been made, and the high character of the acceptances already received gives assurance of a large and representative gathering of the best men in the profession, both in America and abroad, which is necessary to make this Congress the success that its importance merits. Loyalty to our profession and Association requires that each member do everything possible to promote its welfare.

The dental profession in America has an enviable reputation abroad, which will be enhanced by making the Congress a glorious success. In order to accomplish this, it will be necessary for every member to give his hearty support, and assist to the fullest extent, whenever called upon by committees and sections. It is the purpose of your committee to conduct the Congress in a broad-minded, liberal manner, and, in every way, endeavor to promote the highest ideals of dentistry, not only in America, but also in the world. To avoid friction and local jealousies, and secure the right persons for the various responsible positions, it is intended to allow each state, society, and interest, so far as possible, to select its own representatives, with that object in view. Your committee requests that the members of this Association

furnish the Chairman, Secretary, or other members of the Committee, the names of those in their immediate vicinity best qualified to assist in the work. They would also esteem it a favor if members will volunteer their services for places in which they feel they can be most helpful.

The next meeting of the Committee will be held in Asheville on July 27th, and all suggestions sent before that time will be appreciated.

Respectfully yours,

H. J. BURKHARDT, *Chairman.*

E. C. KIRK, *Secretary.*

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### HARVARD DENTAL ALUMNI ASSOCIATION.

At the 32nd annual meeting of the Harvard Dental Alumni Association, held in Boston, Mass., Monday, June 22nd, 1903, the following officers were elected: President, Charles E. Perkins, '90, Brockton, Mass.; Vice-President, Arthur H. Stoddart, '87, Boston, Mass.; Secretary, Waldo E. Boardman, '86, Boston, Mass.; Treasurer, E. Proctor Holmes, '88, Boston, Mass.; Executive Committee, Waldo E. Boardman, '86, *ex officio*, Boston, Mass.; William P. Cooke, '81 for two years, Boston, Mass.; Harry S. Parsons, '92 for one year, Boston, Mass.

WALDO E. BOARDMAN, '86, *Secretary.*

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### Selections

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#### TEMPORARY AND PERMANENT FILLINGS AS BARRIERS TO BACTERIA.

BY A. E. WEBSTER, M.D., D.D.S., L.D.S., TORONTO, CANADA.

Read before the Fifteenth Anniversary Celebration of the Odontographic Society of Chicago, February, 1903.

The attention of the profession has never been called to the possibility of many fillings, both temporary and permanent, not being barriers to bacteria. The experiments here reported cover quite completely what are known as temporary fillings, such as sealings for dressings, etc., and to a limited extent root canal fillings, and what are known as permanent fillings, cements, and amalgams.

#### TEMPORARY FILLINGS.

In discussing the question of temporary fillings used to seal dressings into root canals, it is taken for granted that the most desirable substance is that which will absolutely prevent the



fluids of the mouth from getting into the canal under treatment, or the contents of the canal from escaping in the oral cavity. Of course the material which is the most easily manipulated is preferable if it has the above qualities. So that it may be positively shown that the materials used to seal dressings into teeth, or used to fill teeth and root canals have or have not the power to prevent the passage of bacteria; the tests must be made in the laboratory. It would be wholly impossible to do accurate work in the mouth, because there are besides many other complicating conditions, certain vital influences which cannot be accurately foretold. But to prove the plain scientific fact as to whether bacteria can be dammed out of a root canal by cement or gutta-percha must be done in the laboratory. If all the conditions are made the same as those in the mouth except the vital, which is a variable one and cannot be depended upon in the treatment of any case, the results must be of practical value. The fillings used in these experiments were inserted as far as possible under the same conditions as those that exist in the mouth.

Glass tubes with one-fourth inch bore and about two inches long, sealed at one end, and a slight constriction about a quarter of an inch from the other, were filled with bouillon, or beef broth, up to the constriction, and the open end plugged with cotton. These were sterilized on three consecutive days. The cotton plug was then removed, and the sealing or temporary filling inserted, using ordinary care and cleanliness. After the tubes were filled they were immediately immersed in a beaker of freshly collected saliva. The tubes were allowed to lie upon their sides so the bouillon might come in contact with the stopping. The beaker containing the tubes was placed in the incubator at 37 C., and at the times stated in the following tables the tubes were taken from the saliva and examined as follows:

Sterile water was allowed to flow over them, they were then wiped dry, and with a file the tubes were nicked at the neck and the end broken off with a blow from the file, thus exposing the bouillon. Three loopfuls of this bouillon were then spread upon agar, the test tubes containing the agar were placed in the incubator and examined at intervals until it was certain that no growth was likely to occur. Where a growth occurred it was in many cases stained, and examined under the high power of the microscope. Control tubes were carried through with many of these experiments. These tubes were put through the whole process except the immersion in the saliva. Thus if these tubes which were not put in the saliva were not infected, and those which were put in the saliva were infected, there is only one conclusion, and that is, that they were infected from the saliva. Besides this a beaker of bouillon was infected with *Bacillus pyocyaneus*.

which imparts a distinctly green color to the media. Tubes immersed in the solution become infected with this organism.

A good deal is sometimes said about the advantages of one sealing material over another. So that a basis may be had for a conclusion on this point, and also to illustrate many others; below is a full report of Series D, where all the tubes were put into the same beaker of saliva at the same time, and tests made of each variety at the same time.

#### SERIES D.

##### GUTTA PERCHA.

Ten tubes put into saliva.

In 24 hours 2 tested both infected.

In 48 hours 2 tested, both infected.

In 72 hours 6 tested, all infected.

##### TEMPORARY STOPPING.

Ten tubes put into saliva.

In 24 hours 2 tubes tested, both infected.

In 48 hours 2 tubes tested, both infected.

In 72 hours 6 tubes tested, all infected.

##### OXYPHOSPHATE. (WESTON'S.)

Ten tubes put into saliva.

In 24 hours 2 tested, both infected.

In 48 hours 2 tested, both infected.

In 72 hours 6 tested, all infected.

##### COTTON AND SANDARAC.

Four tubes put into saliva.

In 24 hours 3 tested, all infected.

In 48 hours 1 tested, infected.

##### OXYCHLORIDE. (AMES.)

In 24 hours 2 tested, no infection.

In 48 hours 1 tested, no infection.

In 72 hours 1 tested, no infection.

One tube broken

In other series oxychloride has resisted infection for 60 days. There is no reason for believing that it will not stand out a much longer time.

##### VASELINE MIXED WITH COTTON AND WHOLE COVERED WITH CEMENT.

Five tubes put into saliva.

In 24 hours 1 tested, no infection.

In 48 hours 1 tested, infected.

In 72 hours 3 tested, infected.



To sum up, gutta percha, temporary stopping, cement, cotton and sandarac, cotton vaseline and cement, or gutta percha, are of no value to seal a cavity in a tooth to prevent infection from the oral cavity. A sealing that will not prevent the passage of bacteria for more than 24 hours cannot be depended on, even if a disinfectant be sealed in the cavity, because most disinfectants sealed in the manner described soon become dissipated. Such a drug as carbolic acid sealed with one of the above sealings will lose its potency in from two to three days, and the cavity becomes infected. There are drugs, however, which will resist infection for weeks under such circumstances. Although the temporary filling materials mentioned may not have the power to prevent the passage of the bacteria, they are not useless as sealings so long as the drug sealed in the cavity has the power to prevent bacteria from passing it to infect beyond.

It will be well to state at this time that all sealings of cotton, or those containing cotton, are objectionable, because they soon become saturated with saliva and food juices. They are really incubators. As they are squeezed in the act of mastication millions of bacteria are forced out to infect the alimentary tract, while more food juices are absorbed to renew the activity of the growth; besides this they allow the dissipation of the drug from the dressing and the re-infection of the cavity or root canal.

Oxychloride of zinc, which appears in Series D, did not permit the passage of bacteria. Nor has it permitted the passage of bacteria after being immersed in saliva for 60 days. From these experiments and many others it is clear that oxychloride of zinc is a safe sealing for all open cavities in teeth.

#### PERMANENT FILLINGS.

It is to the second subject under discussion that attention is directed most particularly at this time. "Do amalgams, cements and gutta percha, when used as permanent fillings or as root fillings, prevent the passage of bacteria?" Accurate technique was desired because these materials are used as mechanical plugs for cavities in teeth rather than depending upon any antiseptic quality the material might possess. In most cases where a temporary filling leaks there is still the disinfectant dressing to overcome before infection may take place, but not so with a mechanical filling.

Being satisfied that the foregoing experiments had some bearing on mechanical root canal fillings and cavity fillings further experiments were undertaken.

#### SERIES E.

Ten tubes were made and filled with bouillon, the mouths plugged with cotton and sterilized three consecutive days. Cotton plug removed from the neck, moistened with eucalytus, then

chloro-percha pumped into constriction and a gutta percha cone made to fit and forced home, not using much heat, the packing continued until the gutta percha was perfectly cool. The remaining portion of the tube was filled with cement (Ash). About twenty minutes after the tubes were filled nine were placed on their sides in a beaker of saliva, one held as a control, the tubes being completely covered. The beaker was placed in the incubator, and tests made of the contents of the tubes as follows:

- In 1 day 1 tested, no infection.
- In 2 days 1 tested, no infection.
- In 3 days 1 tested, no infection.
- In 4 days 1 tested, infected.
- In 5 days 1 tested, no infection.
- In 7 days 1 tested, no infection.
- In 9 days 1 tested, no infection.
- In 14 days 1 tested, infected.
- In 17 days 1 tested, infected.
- In 17 days control tested, not infected.

Series E having shown a protective power for root canal and crown fillings for only 14 days it was determined to insert some amalgam fillings, some cement fillings and gutta percha root fillings, covering with cement, and gutta percha root fillings covered with a layer of oxychloride, and then oxyphosphate over all, using the greatest possible care in their insertion, as to mechanical correctness and technical correctness from a bacteriological standpoint.

Heavy glass tubes two inches long and one-quarter of an inch bore were drawn to a fine neck about a quarter of an inch from the end, the remaining quarter of an inch was made into a cylindrical bowl with a solid rim and a flat base, the centre of the base having a fine hole leading to the tube below.

The inside walls of the bowl were ground with a stone so that they became rough, similar to the walls of a recently prepared cavity in a tooth. Bowls were plugged with cotton and sterilized in dry air at 160 C. for one hour, then filled almost to the constriction with bouillon. Cotton plugs replaced and tubes sterilized in live steam for 20 minutes on three consecutive days.

#### FILLING BOWLS WITH AMALGAM.

Alloy, mercury, mortar and pestle, and instruments used in inserting fillings were sterilized in dry air at 160 C. for one hour; sterilizer was then allowed to cool to 37 C. Thus the tubes, the instruments, the filling materials and saliva were all of the same temperature, 37 C. The filling materials were mixed and placed in the bowls of the tubes in the sterilizer at body temperature and



maintained at that temperature until tested for infection. In this way there could be no possible chance of error by an unequal expansion or contraction of the glass or the filling materials between changes of temperature. Within ten minutes of the bowl being filled with the amalgam the tubes were immersed in the beaker of saliva. The beaker was then placed in the incubator, which was maintained at a uniform temperature, 37 C. In all, thirteen tubes were filled, ten put in the saliva and three control tubes put through all processes except being placed in the saliva. Some of the amalgam mixed was imbedded in agar, and put in incubator. In no case were the material, instrument points, or contents of tubes touched with the hands. As far as possible every source of infection was guarded against.

Thirteen tubes filled, 10 put in saliva.

#### SERIES F.

In 7 days 2 tubes tested, 1 control, and 1 from saliva, neither infected.

In 16 days 1 tested, not infected.

In 39 days 1 tested, not infected.

In 47 days 1 tested, not infected.

In 52 days 1 tested, bouillon cloudy, but no growth on agar.

In 61 days 1 tested, not infected.

In 66 days 1 tested, infected.

In 73 days 1 tested, infected.

The manner of testing or deciding whether an infection had occurred or not was the same as that previously described under control fillings.

#### CEMENT TESTS.—SERIES G.

A test of Fellowship cement under the conditions aforementioned was made with the following result:

13 tubes filled.

10 tubes put in saliva, in 7 days 10 tested, 4 infected.

3 control tubes not put in saliva, 7 days, were not infected.

#### SERIES H.

##### ASH CEMENT.

5 tubes filled.

4 put in saliva, in 8 days 4 tested, all infected.

Control not infected.

#### SERIES I.

##### JUSTI CEMENT.

5 tubes filled.

4 put in saliva, in 8 days 4 tested, 1 infected.

Control not infected.

## ROOT FILLINGS.

The same heavy tubes were used in these experiments, only having the necks drawn out a great deal longer so as to make a fine root canal. All were filled under the same conditions of care, etc., as preceding, canals lubricated with chloro-percha and gutta percha cones forced home, using little heat and good pressure. There is a serious objection to heating gutta percha very much when filling a canal. It greatly contracts on cooling. About a half hour after the canals were filled the bowl was filled with cement. As soon as the cement was set the tubes were placed in the saliva.

## SERIES J.

11 filled.

11 tubes put in saliva.

In 8 days 1 tube tested, not infected.

In 13 days 1 tube tested, not certain, but likely infected.

In 20 days 1 tube tested, infected.

In 28 days 1 tube tested, infected.

In 32 days 1 tube tested, infected.

In another series canals were filled as above, and over them was placed a thin layer of oxychloride and over all the same cement, as in previous series.

## SERIES K.

7 tubes filled.

In 6 days 1 tested, not infected.

In 13 days 1 tested, not infected.

In 20 days 1 tested, not infected.

In 28 days 1 tested, not infected.

In 33 days 1 tested, not infected.

In another series the canals were as well filled with gutta percha as possible, slightly warming them and using no lubricant nor filling the cavity with cement.

## SERIES L.

5 tubes were put in saliva.

In 24 hours 5 were tested, and 2 were infected.

The above experiments are only a corroboration of work done by the author some years ago and published in the April number of the DOMINION DENTAL JOURNAL, 1900. The experiments at that time were made in a purely mechanical way, but they pointed directly to what was suspected at that time, and to what has been shown by more recent investigation. The ordinary root canal filling is not a barrier to either moisture or bacteria. The author when making the experiments did not dream of the infection of a root canal from the oral cavity, but was directing attention to the possibility of closing the apical end of the root



canal only. To quote from the paper in question: "If a root canal ought to be filled there must be some reason for it. The best and only reason for filling a root canal is to keep something out of it that is undesirable. That undesirable something is most likely moisture or granulation tissue, or both, with a probable pyogenetic infection. It is fair to assume that a filling material that will prevent the passage of moisture will prevent the passage of bacteria and granulation tissue. This being granted, the relative merits of absorbent cotton, raw cotton, gutta percha, and the cements as barriers to the passage of moisture, and hence the passage of bacteria can be seen from the following experiments. It must be borne in mind that these experiments do not relate in any way to the solubility, destructibility, density, or irritating qualities of the material used."

Glass rods about two inches long with three-sixteenths of an inch bore were drawn to a fine point at one end, while the other end remained its original size. In this way a cone was made about three-quarters of an inch long and resembling the root canal of a tooth. In all cases these cones were opened clear through. When they were filled with the root canal filling material their small ends were immersed in a red colored solution. This was accomplished by passing the tubes through holes cut in a piece of cardboard and the cardboard placed over a shallow pan containing the red solution. The tubes were held in an upright position, while only their small ends were below the surface of the solution.

Below is a tabulated form of the experiments arranged in the order in which they acted as barriers to moisture:

#### SERIES M.

Material.	Tubes.	Hrs. Time.	Colored.	Not. Colored.
Chloro-percha and gutta percha points . . . . .	10	48	3	7
Gutta percha . . . . .	13	48	6	7
Oxychloride . . . . .	13	48	11	2
Absorbent cotton (large end of tube sealed) . . . . .	26	24	24	2
Cotton and chloro-percha . . . . .	10	48	8	2
Raw cotton . . . . .	22	48	22	..
Absorbent cotton . . . . .	7	24	7	..
Oxyphosphate (Ash) . . . . .	12	72	12	..
Oxyphosphate (Hammond) . . . . .	13	48	13	..

Thus it would appear that if there were moisture at the end of a root canal, practically none of the above materials would prevent its passage into the tooth cavity.

I approach the summing up and the drawing of conclusions from the work I have done with some misgivings. First, be-

cause of the incompleteness of the work done, and second, because it is quite possible to come to a wrong conclusion, though the premises may be correct. Again, the conclusions arrived at may not be wholly based upon the experiments here reported, because a great deal has been done that if now reported would only weary you. However, it may be safely stated that oxyphosphate cements, gutta percha, cotton, or any combination of these with each other, or with any other undisinfecting materials will not prevent the passage of moisture or bacteria. Oxychloride of zinc will prevent the passage of bacteria for at least 60 days, but not moisture for that length of time. Some amalgams, if properly mixed and inserted, will resist the passage of bacteria for two months, and others will not resist bacteria for three hours, no matter how mixed or inserted. There are doubtless many questions arising in every active mind here: Have you tried this or that cement or So-and-so's gutta percha? or what amalgams leak or what do not? Do the bacteria pass through the substance of the material, or do they pass between it and the walls of the cavity? After testing ten or twelve cements of different names my conclusion is, that they all leak; those that do not shrink allow the passage to take place through the mass. The only difference is, that those that shrink leak sooner than those that do not. Only a few amalgams have been tested, but it is quite likely that only those leak that contract or flow badly.

Root canal fillings made by heating gutta percha cones and packing them with an instrument that penetrates the material are not so resistant to either moisture or bacteria as those made by first using chloro-percha, and then carefully forcing the proper-sized cone into the canal without puncturing or heating. When gutta percha is heated it seems to have a tendency to creep, and unless it is held with continuous pressure until it is hard, spaces will appear around it. Notwithstanding its defects, chloro-percha and gutta percha root fillings are the best resistants of moisture among those materials examined, but its power to resist either moisture or bacteria is not great enough to make it an ideal root filling.

In the light of what is shown in Series E, D, etc., and in Table M, consider a tooth in which the pulp has been devitalized and removed, the root canal filled with gutta percha, and the crown filled with cement or an artificial crown cemented on, or the tooth used as an abutment for a bridge which is set in cement. It is almost certain that bacteria will have penetrated from the oral cavity clear through the cement filling and gutta percha root filling in less than a month, if the resistance of the living tissues do not prevent it, and we know that they very often do not. It is quite possible and in fact probable that there are more alveolar abscesses on treated and filled teeth due to direct infection from



the oral cavity than from an infection from the general circulation. It is quite clear from these experiments that if there be moisture or bacteria at either end of a tooth filled with cement or gutta percha they will be absorbed and kept in abeyance only by the resistance of the living tissues; but as soon as this resistance is lowered, or the dose very much increased, the tissues about the apical foramen are invaded, and an alveolar abscess is imminent. Many filled teeth are kept in a lame condition for years because of the continued irritation of an infection about the apex.

Since a root filling made by first moistening the canal with eucalyptol, and then pumping chloro-percha into it, and into this forcing a gutta percha cone is the best resistant to moisture, and since oxychloride of zinc is the best resistant to bacteria, a combination of these two materials would seem to make the best root filling. The gutta percha being placed at the apex of the root canal and over this a filling of oxychloride of zinc. This combination root filling has resisted infection from the crown end for over 60 days. Of course there is the probability of absorption of moisture if there be any from the apical end, but no harm will come of it if bacteria are not carried to it by the circulation.

In conclusion, it is my impression that few, if any, root canal fillings are resistant to either moisture or bacteria, and that most periodontal infections are direct from the oral cavity in pulpless teeth, and if oxychloride of zinc were used in the pulp chamber or some part of the root canal many, if not all, of such infections would be averted.

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## SYSTEMIC INFECTION, DUE TO NATURAL TEETH CONDITIONS.

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BY D. D. SMITH, D.D.S., M.D., PHILADELPHIA.

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Read, by invitation, before the Philadelphia County Medical Society, January 18th, 1903.

There are in the human mouth to-day, as has been the condition through all the centuries, malignant factors of general infection and causes of disease wholly unperceived and neglected, and thus the oral cavity has ever been and still remains a prolific source of contagion.

Medical science and its allies, ancient and modern, virtually limiting the study of the mouth, as an index to general systemic conditions, to the tongue, and naturally looking for ultimate causes of disease to inimical foods and drinks, or methods of ingestion, to so-called "malaria," to mental and physical overwork, to adverse locality, microbic atmosphere, morbid condi-

tions of stomach, kidneys and lungs, have failed to apprehend or recognize agencies of infection, obvious, prolific and virulent in the very vestibule of human life.

Dentistry engrossed with its mechanics and mechanism, devoting its energies largely to repair of the teeth, has discovered nothing of the serious consequences of mouth infection, neither has it made known the most important connections of the teeth in their relations to general systemic conditions.

Hypothetical as these enunciations may at first appear, they will be found, in the light of full scientific investigation, completely verified.

The statement that all erupted or exposed tooth-surface, in its natural state, is bacterially infected surface, is incontrovertible. And when it is considered that in the normal mouth, from eight to twenty years of age and later, there are twenty to thirty square inches of such surface, the momentous import of these conditions becomes at once apparent.

To conceive of the oral cavity as the "vestibule of human life" is a simile not inappropriate, for it is at this entrance that all systemic stores, commissary supplies, fuels, etc., for nutrition, are received and tested on their way to the stomach, the chief chemical laboratory and distributing centre of the general system. And not only this,—it is here that the various foods, solids and liquids incorporate with the oral secretions, piped into the mouth from special glands, and the mass subjected to a process of maceration in preparation for deglutition. Engaged with these and other indispensable offices, the oral cavity is never wholly out of service, and literally, it may be said, that through lack of intelligent care it is generally found in a state of pernicious infection. It is here that solid particles from the breath, saliva, food remains and other debris constantly deposit and accumulate; becoming cemented to the teeth, chiefly through inspissation of the viscid mucus perpetually oozing from many irregular glands concealed beneath the mucous membrane of the mouth. Greatly augmenting the infection from this cavity, the air commonly diverted through it, especially in mouth breathers and in sleep, becomes a purveyor of toxic emanations to the lungs, where it inevitably deposits its contagion in lung tissue or in the blood. Necessarily the subject of such conditions, this vestibular cavity with its twenty to thirty square inches of dentate surface, becomes quickly infested and infected with all manner of bacterial formations, decomposing food particles, stagnant, inspissated, septic matter from saliva, mucus and sputum; not infrequently with pus-exudation from irritated and inflamed gum margins; gaseous emanations from decaying teeth and putrescent pulp tissue; salivary calculi (tartar), nicotine and the chemical toxins which result from decomposition due to mingling of mouth secretions, excretions and food-remains, in a temperature constantly maintained at the high normal of 98 deg. F.



In this is presented a true picture of the many sources of infection, inseparably connected with untreated teeth. Incredible as it may appear, these conditions obtain, not in the lower classes alone, but in general mouth conditions in high and low-born, fastidious and boor, king and peasant.

Respecting the state of the breath in ordinary expiration, Hermann Koninger, in the *Journal of Hygiene and Infectious Diseases*, summarizes some original experiments as follows:

“The author has been able to assure himself that, in an apartment where there is no appreciable current of air, a person coughing or sneezing could scatter germs to a distance of more than seven meters (22 feet.) Germs are scattered through the air by means of salivary droplets. These droplets are really microscopical balloons, having a bubble of air in the centre, and remain in suspension but a short time. The dissemination of droplets with their germ-originating capabilities and tendencies is most marked during coughing and sneezing. The more pathogenic microbes the mouth contains, the greater the danger of infection. Washing the mouth has the effect of decreasing the diphtheritic and other bacilli susceptible of being detached. Placing the hand or handkerchief over the mouth prevents the emission of droplets charged with bacilli. During a surgical operation no one present should speak. Measures may be multiplied indefinitely for prevention in connection with this important idea of scattering infected droplets in the breath.”

Thus it is manifest that, with past and present conditions of mouth and teeth, infection in the oral cavity is a common heritage, and that none under existing regime can wholly escape its evil consequences. A gleam of recognition of this fact is found in the *London Lancet* of November 15, 1902. The editor says:

“The alarming increase of dental disease is beginning to attract the attention of the general public, while there are also signs that the medical profession is becoming more alive to the possibilities of dental disorders being important factors in the production of certain general diseases. Dental caries is the most prevalent disease of the human race. There is little doubt that a large number of children suffer from impoverished nutrition solely from neglected conditions of the mouth.”

Experience has shown that it is not only possible but entirely practicable, through intelligent “prophylaxis treatment,” successfully to combat caries in children, and at the same time keep the mouth in a good state of asepsis. An important auxiliary benefit from this treatment is found in its educating the child to intelligent self-care of the mouth, and in the relief it affords from the terrible dread and fear of the operations of dentistry, a present serious obstacle to proper professional care in all cases.

Recognition of this by physicians, to whose care children are naturally committed, and corresponding advice from them to parents or guardians would result in incalculable benefit to the

teeth and not less to the general health of childhood. The suggestion frequently seen, that the dental profession can or should assume to control the diet of infants and children for the production of good teeth, is an absurdity. If the dental or medical pediatrist had the power, he would do well to give to every mother and every child a plentiful supply of healthful foods—cereals, vegetables, fruits, nuts and meats—and thus, and thus only, through dietetic means lay the foundations for good teeth. No special foods or special methods of feeding will accomplish this end. Foods that make good bone, muscle, nerve and other tissue, will likewise make good teeth.

If by “dental disorders” the *Lancet* means dental caries, which it styles “the most prevalent disease of the human race,” it may be confidently questioned whether dental caries alone should be regarded “an important factor in the production of certain general diseases.” Pyorrhea alveolaris, formerly styled Riggs’s disease, an inflammatory condition of gum margins, pericementum and alveolar process, resulting in pus formation, and *wholly dependent on the presence of natural teeth in the mouth*, is unquestionably productive of some general diseases.

My observations lead to the confident belief that the kidneys are the organs affected by the products of this particular pyemic condition. An error quite generally accepted for fact, is the belief that pyorrhea alveolaris results from uremic poisoning. While uremia and pyorrhea may be, and often are associated, the presence of urea in the blood is not a cause of alveolar pyorrhea; but the converse of this proposition is a true pathological condition. Uremia is a usual result of alveolar pyorrhea, due to the perpetual ingestion of mouth toxins—pus and other effete products—which are constantly and inevitably taken into the stomach because this inflammatory condition *is in the mouth*. Alveolar pyorrhea is never of systemic origin, but is wholly local and caused by the stagnant, septic accumulations *on the teeth*. These accumulations induce inflammation of the tissues at the gum margins about the affected teeth, and as the inflammatory products increase, the gums, pericementum and alveolar tissue become involved and withdraw more and more from sections of the roots, forming pockets in the alveolar process beside the roots which increase the infection and hasten loosening of the teeth. Pyorrhea is readily amenable to intelligent treatment when such treatment is instituted before destruction of the tissues has progressed to hopeless loosening of the teeth. An edentulous (toothless) mouth is never the subject of pyorrhea; and whenever the disease has developed, extraction of such affected teeth always results in speedy and complete cure. In this is clearly manifest the verity of the local origin of this disease. “The increasing prevalence of dental caries” surely cannot justly be held alone responsible as the cause of systemic dis-



ease; it is a factor, but only so far as it contributes to general mouth infection.

"When does mouth infection due to the teeth begin?" It begins with the eruption of the deciduous set and continues with increasing gravity through the period of shedding the temporary and erupting of the permanent ones, and thence on so long as the natural teeth are retained in the mouth; the most critical time being that of childhood and early youth, a period in which the mouth, under present regime, is wholly without intelligent care. Children's mouths are frequently veritable crucibles in which are generated chemical agents and compounds highly detrimental to the teeth themselves and not less to the general health of the child. Vitiating salivary and mucous secretions, bacterial plaques upon the teeth, decay, retained food particles and saccharines; breaths loaded with emanations from stagnant septic matter, all at a maintained temperature of 98 deg. F., insinuate into the circulation a constantly increasing infection, to find expression later in life in diverse pathological conditions and often in chronic and fatal disorders. It may appear, as it commonly does, in stomach or kidneys; in lungs or nervous system; in heart, brain or skin; in any organ or tissue to which mouth toxins are directly or indirectly conveyed.

In an endeavor to limit contagion, medical interposition very properly condemns expectorating in public conveyances, on floors, sidewalks and in all frequented places. Beards, kissing and even the shaking of hands are under condemnation of the scientist.

Dr. J. H. Hirsch, of Chicago, in finely spun theory, says: "The most delicate perfume upon the hand is neither a sign of freedom from germs nor a protection, and the most refined are not free from diseases of the lungs or throat which are rapidly spread by touching the hand that has handled the handkerchief of one afflicted with a cold, catarrh or consumption. These diseases claim more than one-seventh of all the deaths. Our street-cars carry signs which forbid expectorating in them, yet passengers in these same cars may hold the hand before the mouth when they cough and cover it with germs enough to infect a thousand people."

In *American Medicine*, October 25, 1902, under "Sanitary Telephones," we read: "It is claimed that in speaking into a telephone receiver held within an inch or two of the mouth irregular sprays of saliva (droplets) may be ejected into the mouthpiece and the drying up and subsequent blowing about of particles so ejected might cause infection."

Under the heading "Microbes in Letters" this appears: "In nine cases out of ten the envelope containing the letter is licked by the sender, as is also the stamp. Infection, therefore, may easily lurk here." If bacteriologists are correct, the beard and moustache are filled with microbes, and hence the command

has gone forth in Germany that surgeons must shave. (Would it not have been better if this order had compelled the wearing of mouth masks?) Volumes might be compiled from articles relating to poisoning of atmosphere in street cars, in school-rooms, churches, public halls, theatres, bed-chambers and homes (to which might well be added an emphatic protest against the common communion cup); but nowhere is found a sentence in regard to the malignant mouth conditions, encountered everywhere; and so the oral cavity, neglected, often wholly without care is left perpetually to infect its individual source and to pour forth a comet-like train of contagion in every expectoration, every cough and every exhalation. Although little considered, the danger attending droplet infection, due to the ordinary septic mouth conditions, especially in close apartments, in the sick-room and even in common conversation, may well be shunned and evaded.

Where, then, shall we look for the true origin of the dreaded infection lurking in sputum, in letters, telephone receivers, on lips, in beards and in many other concealments? It is largely due to septic conditions of the natural teeth and to the stagnant toxins ever present in the oral cavity. Scientific laboratory experiments in proof of this are wholly unnecessary. Every one can apply the demonstration. Passing the finger over the labial or buccal surfaces of the teeth on rising in the morning, drawing unwaxed floss silk between the teeth, or even breathing upon the hand and applying to the nostrils, will quickly convince the most sceptical of the presence of the abounding infection in the mouth. Further evidence may be obtained by securing but the smallest particle of decomposing matter from a decayed tooth; through opening into a nerve cavity containing putrescent pulp tissue, or in gathering a minute quantity of the septic matter, often mixed with pus exudation, from about and between the larger teeth, as the molars; or, most convincingly, through examination of a freshly extracted tooth.

Further and seemingly indisputable proof of the infection due to the natural teeth and what they gather to themselves in the mouth, may be found in the almost universal improvement in general health conditions following the loss of all teeth. Complete recovery from ordinary diseases of the digestive tract, from many skin troubles and numerous nervous disorders, is a usual result of the extraction of all teeth. The intimate relationship of mouth infection with many morbid states and general pathological conditions seems clear, and presents conditions worthy of special emphasis, study and elaboration.

An editorial in a recent number of *American Medicine* reads in part as follows: "There are ten millions of them!—Everybody knows about them, the disease they spread, their horrors, their worse than loathsomeness? Every one endures, submits in silence, feels himself powerless to remedy. Boards of Health



cannot, or think they cannot, attack the evil; or they are too busy with things they think are more important. And so the filthy country and village water-closet persists from generation to generation. The intellectual philanthropist is yet to come who shall undertake one of the greatest reforms of the world !”

The greatest sanitary reform of the world is not the abolition of the village closet, but it lies in the Herculean task of revolutionizing the unsanitary and infectious condition of the human mouth; contagion and disease from the latter is a thousand-fold more subtle and dangerous than from the former, for it is found not only in country and village, *but it is also in all human mouths and in all places where humanity dwells.*

Tuberculous patients, in modern practice, are sent to the woods or open air. Waxham, with whose views there seems general agreement, says: “The best results are obtained from sleeping in a tent the year round, and this can be done by shifting patients about, allowing them to spend their summers in Colorado and their winters in Arizona or New Mexico,” but there remains yet to be made the first consistent effort looking to *asepticizing the oral cavity* where the most pernicious factors of this lung and stomach infection are abidingly entrenched.

In addition to the toxins engendered amidst stagnant accumulations perpetually adherent in the mouth of consumptives, the sputum itself in appreciable quantity clings to the already infected tooth surfaces, increasing bacterial plaques and multiplying bacterial cultures *in the mouth*. Can it otherwise be, than, that thus an endless chain of ever-increasing contagion revolves in foods and air to blood, thence to organs and tissues, to be deposited, it may be as initial infection or perhaps in augmentation of some pathological state already established; or it may return to the mouth in mucus or saliva, or in some inflammatory exudation, there to begin again its round of infection?

In view of this, is it matter for wonder that a recent author, Dr. Jessie Shoup, writing for *American Medicine*, says that in consumption “the system is constantly placed on the defensive and at no time is it able to change front and assume the offensive”? And, further, “We cannot eradicate this disease?” Does it not seem reasonable to infer that, while present neglected conditions of the oral cavity pertain, the “system” of the unfortunate tuberculous will neither be able to change front nor acquire strength to assume the offensive? Dr. Arthur Latham says, “The current treatment of consumption is a mere pouring in of drugs without any attempt to reach the root of the disease.” Surely heroic “prophylaxis treatment” for the teeth and vigorous sanitary measures for mouth conditions in suspected cases, and not less as auxiliary treatment in the developed disease, are worthy of most careful and considerate investigation in an endeavor to benefit humanity and to free the profession from the opprobrium of this “white plague.”

One or two English physicians have recently made some observations respecting the effects of mouth infection on general conditions, noticeably Dr. William Hunter, in an article in the *Lancet*, 1900, entitled, "Oral Sepsis as a Cause of Pernicious Anemia." In his hospital practice Dr. Hunter seems to have encountered most astonishing conditions of the mouth, due to ignorance, extreme neglect on the part of patients, and as he described them, to inexcusably wretched operations upon the teeth; the latter conditions unparalleled in this country it is believed even in the worst state of dentistry. In these extreme cases only Dr. Hunter has recognized and rather timidly asserted the effects of mouth infection. It is not to these appallingly neglected and maltreated mouths encountered chiefly in hospital practice that we are to look for typical cases of general infection due to mouth conditions, but it is to *every mouth containing unsanitarized teeth*.

The coining here of the word "unsanitarized," so aptly expressive of a condition of the teeth heretofore undescribed and unrecognized, is believed to be fully justified.

What has been said of mouth infection as excitant and promotive of tuberculous conditions, applies with equal emphasis to stomach, kidneys, the nervous system and other organs. Many forms of stomach disorders are of necessity, awakened by this ever-present septic condition of mouth and teeth. Renal complications also, in all forms, I believe to be aggravated, if not induced, by the stagnant, septic toxins engendered in the oral cavity and perpetually adherent to the natural teeth.

Many of the milder types of nervous disorders having yielded with surprising readiness to the "prophylaxis treatment" hereinafter to be described and advocated, establishes confidence in the belief that many of the numberless cases of so-called nervous diseases—nervous prostration and kindred conditions—and, possibly, some, if not many, of that uncertain dread disease, toxic epilepsy, and as already intimated, probably many cases of gastric and renal disease are engendered by the septic poisons irresistibly and perpetually bound to the system through this virulent unperceived infection in the mouth.

Susceptibility to the infection of smallpox and other zymotic diseases we assume to be heightened by the favoring culture medium in present mouth conditions. The question may yet arise whether the germ of smallpox becomes infection until it develops culture in the mouth. If this should be accepted as an affirmation, as it possibly will be, maintenance of perfect mouth asepsis would render the system practically immune.

In view of the fact that every mouth, with teeth in their natural untreated state, is inevitably breathing out dangerous and infected droplets, how puerile seems the contention over the surgeon's beard. If, however, discussion shall develop a better understanding of the true source of beard infection and empha-



size the special dangers attending amphitheatre and all surgical operations through droplet infection, it will accomplish great good.

We are now face to face with the query: "Are these conditions remediable or must they endure?"

In 1894 I began a line of experimental investigation to determine the true source of tooth decay. Results from these experiments, carried forward on patients only, were all in harmony with the theory that caries of the teeth begins at some point on the exposed enamel surface, and that it is primarily due to the affinities of the ultimates of the teeth for the acids of the menstruum in which the tooth is perpetually enveloped. What seems indisputable proof of this theory is the fact that, if a devitalized or pulpless tooth, such a tooth as is conceded to be the subject of more rapid decay than one with a vital pulp in the same environment, be removed from a mouth in which resolution is rapidly taking place, and it be placed in water, alcohol or glycerine, or simply exposed in the air, all caries in that tooth is at once arrested.

The inevitable deduction from such an experiment is, that caries of the teeth is a result of environmental conditions; and this is in agreement with general observation and all clinical experience. Growing out of the experiments referred to and their results I have developed a system of caring for the teeth diametrically the opposite of all former conceptions, theories and methods of practice; and whenever the system has found typical exemplification, whether in childhood, youth, middle life or old age, most favorable and satisfactory results have universally followed.

The treatment consists in enforced, radical and frequent change of environment for the teeth, and perfect sanitation of all mouth conditions. Experience having demonstrated that the most careful and painstaking are unable, with the agents commonly employed, as the tooth-brush and dentifrice, tooth-pick and dental floss, soaps, so-called germicidal washes or other agencies, to effect this end, the plan of forcible and frequently renewed sanitation, by an experienced operator, has been instituted with results as already stated. In detail the process consists in most careful and complete removal of all concretions, all calcic deposits, semisolids, bacterial plaques and inspissated secretions and excretions which gather on the surfaces of the teeth, between them, or at the gum margins; and this to be followed by thorough polishing of all tooth surfaces *by hand methods* (power polishers should never be used), not alone the more exposed labial and buccal surfaces, but the lingual, palatal and proximal surfaces as well, using for this purpose orange-wood points in suitable holders, charged with finely ground pumice-stone as a polishing material. Treated in this manner the teeth are placed in the most favorable condition to prevent and repel

septic accumulations and deposits, and not less to aid all efforts of the patient in the direction of sanitation and cleanliness.

In every instance in which this treatment has been instituted for the deciduous teeth, and in many cases of adults, there has been immunity from decay, and the teeth have shown a marked change in structural composition. Alveolar development in children has also apparently been stimulated and increased to meet the requirements of erupting teeth. The extreme and unnatural sensitiveness of the gums, attended with purple color, congestion and tendency to bleed, has, in every instance been fully overcome, and there has been quick return to the normal condition of low-grade sensibility, and to the natural pink tint of the gums, with typical striations and beautiful festoons. It is also apparent that the tissues of the teeth themselves, especially the dentine and enamel, probably through stimulation of the vital forces of the pulp due to this treatment, begin a surprising change for the better; a change which is first and specially noted in improved color and general appearance. Dull, opaque tooth substance, often loaded with offensive "old ivory" pigment, is transformed into clear, translucent tooth tissue, the teeth assuming the appearance of living organs, and having an impressive individuality.

For seven years the revelations and the benefits of this treatment, hitherto unknown, have been to me a constant source of surprise and delight, and with ever-increasing emphasis are demonstrating the necessity for this thorough and frequent change of environment for *all* teeth and *all* oral conditions.

To arrest or to prevent inflammatory processes in the mouth is to arrest and prevent resorption of pus exudations and other effete products of mouth inflammations, which of necessity are carried from the mouth directly into the digestive tract. The one and only method of prevention and relief from this source of infection is as stated, forcible, complete and frequent removal of the stagnant irritants and toxins which perpetually recur on and between the teeth and along the gum margins. Maintained at intervals of about a month, this treatment is followed by immediate lessening and ultimate arrest of all inflammations and all inflammatory exudations from the oral tissues and complete eradication of the stagnant accumulations otherwise perpetually adherent on and about the teeth.

Another important beneficial result of this treatment is seen in the unloading of the breath of its malodors and consequently of its often malignant infection, conditions frequently but erroneously charged to the stomach. Clinical experience adds its testimony in substantiation of all this. Of the whole number of subjects under this monthly "prophylaxis treatment," all have shown some phase or state of general health improvement.

The most common condition, malaise, expressed in an indifferent appetite, coated tongue and sallow skin, has in every



instance, in from three to four months, given place to clearing of the tongue and skin, better assimilation of food and apparent increase of vitality.

Next in point of numbers are cases of so-called "nervousness," in both men and women—several in a condition approaching "nervous prostration." The rapid improvement and recovery in these cases has been a matter of astonishment and gratification. Inflammatory conditions of the throat, some of long standing and attended with tonsilitis, using topical applications only in addition to the "prophylaxis treatment," have in every instance shown marked improvement; some have been cured, and all others are improving under treatment.

One case of chronic nervous dyspepsia in an inveterate smoker, complicated with violent paroxysms of acute stomatitis, gums flabby and at times greatly swollen, even above the occlusal surfaces of the teeth, rendering mastication extremely difficult and painful; tongue furrowed and thickly and continuously coated; breath offensive in the extreme; accepted the "prophylaxis treatment" with considerable hesitation. Result, after eighteen months, complete restoration of mouth tissues, cure of the dyspepsia and return to full general health conditions.

Two notable cases of alveolar pyorrhea in men, one with pus exudations from the gum margins averaging half a teaspoonful in twenty-four hours, disagreeable inflammation of the throat, extremely offensive breath, sallow skin and complete loss of appetite. (In this case the patient stated a diagnosis of diabetes had been made and the usual restricted diet ordered.) The other case was complicated with violent stomatitis involving the whole left upper and lower jaw; patient in state of extreme nervous irritability, mastication painfully difficult, food assimilation imperfect, sallow skin, coated tongue and offensive breath. In each case the "prophylaxis treatment" was instituted at intervals of two to three days for about three weeks, when the time was gradually extended to one treatment a week, and from that to one in two weeks, until at the expiration of three months there was a treatment every third week; topical remedies were mainly used. Both of these patients made a complete recovery both as to pyorrhea and general mouth conditions and the restoration of the general health.

I may be permitted to detail a most interesting case of long-standing tonsilitis, complicated with chronic inflammation of the upper pharynx, the uvula and the half arches. The tonsils were greatly enlarged and the whole pocketed and inflamed surfaces continuously coated with a muco-purulent discharge; there was great depression of the nervous system, irregular appetite, anxiety, frequent "grippe," colds and coughs. (The lady had been subject to "spray" treatment for the throat and given general tonics.) This patient has been only seven months under the "prophylaxis treatment" with topical applications to the

affected surfaces, and in that time benefited to such degree as to warrant a most favorable prognosis. Three other cases, having all the symptoms of suspected beginning tuberculous decline, were noticed, and treatment instituted at the stage of beginning cough and expectoration; these have been improved with less than two years of "prophylaxis treatment" to such an extent that it is believed there will be no further development of the disease.

Five cases of gestation regardless of the oft-repeated prophetic warning have been under the monthly "prophylaxis treatment" and watched with great interest. Result: The birth of five healthy children; mothers in each case made most satisfactory recovery, and that not only without proverbial "loss of a tooth for a child," *but without injury to any tooth or teeth.* Other and varied interesting conditions and cases which it is deemed unnecessary to introduce here have been greatly benefited by this "prophylaxis treatment."

It is a matter to be recognized that relief from mouth infection is to be afforded through dentistry alone. Germicides will not, they cannot, accomplish it. There must be positive and frequent removal of all septic conditions of the teeth and all environmental states which promote toxic stagnation and germ culture in the mouth, and a general maintenance of the most perfect state of asepsis for the entire oral cavity. This can be accomplished only through the most skilful manipulation of educated, intelligent dentistry.

It may seem difficult to realize, but it is nevertheless true, that no greater good could come to humanity through the medical profession than the full recognition of the dangers from this insidious, prolific and virulent infection in the human mouth. The initiative in this reform must lie largely with the mother profession, for dentistry, with a degree stigmatized as "a badge of partial culture," and possessing but a modicum of knowledge respecting general conditions, as yet takes little cognizance of the true status of the teeth in their most important relations. Resting in past attainments in mechanics, it fails to grasp other conditions and other states of far greater importance, as witness a recent editorial in a conspicuous dental journal under the title: "The Same Old Things,"—a feeble arraignment of the dental profession for its lack of progress. In the same vein, another journal, in its editorial columns, not long ago declared: "We" (the dental profession) "are floating in shallow water. It is evident we have not been doing all we should have done to meet changing conditions." "We are floating in shallow water," indeed, when the main subjects before the profession for discussion are what they are to-day, "Porcelain Inlays," "Extension for Prevention," "Root Fillings" and other mechanical methods of like import.

The undisputed possessions of the dental profession include



the very gateway to the human system, with all the important offices attaching thereto, and yet it has so circumscribed and limited its own field of operations that it has to do to-day, chiefly with the one disease, caries, in the crowns of teeth; and he that can the more adroitly deal with this condition is generally the most lauded. The limitations, feeble conceptions and the errors of writers and teachers have given the general public, and the great majority of the medical profession also, the impression that dentistry is what its schools have unwittingly made it, first and mainly, the filling of a decayed tooth. Its want of standing with the community is such that in every conflict the medical opinion supersedes the dental. There is practically no finality in a dentist's diagnosis or decision.

The addition of a dental mouth mirror to the pocket case of the physician would readily uncover astonishing lack in diagnostic acumen as to mouth conditions, and reveal causes of tooth decay, general mouth and breath infection and sources of disease, as unexpected as these conditions are humiliating and dangerous. The discoveries resulting from the oral prophylaxis treatment delineated, open a most important field of diagnostic research to medicine and surgery, and greatly enhance the opportunities for scientific development in dentistry. They also offer a means for greatly extending the benefits of dental service, and for making the dental profession a branch of medicine in reality; and this, in its own legitimate field, the oral cavity.

Physicians, it would seem, owe it to themselves and to the general public, in recognition of this ever present mouth infection, consistently to urge that the sphere of dental practice be enlarged to meet the constantly recurring necessities of this most momentous phase of medical and dental science.

Is it too much to hope that in the beginning of this twentieth century we shall witness, from specially instituted chairs in schools of medicine and dentistry alike, teachings which shall make plain to both professions their true relations as to kinship, homogeneity and mutual interdependence, and which shall evolve a system of Medico-Dento-Bacteriological Medicine having for its one object and aim the betterment of human teeth and the dethronement of Mouth Infection?—The Phil. Med. Jour.

# Directory of Official and Voluntary Dental Associations and Societies of Canada

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# Dominion Dental Journal

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## THE PRECEPTOR QUESTION.

The progress of any people is marked by the interest they take in educational affairs. Judged from this standard, dentistry is making progress. Dental education is discussed among non-graduates, graduates, students, and teachers alike. There are many dental organizations whose only business is to discuss dental education. In Canada there are many who are alive to the necessity of the best possible education. In all this interest and expression of opinion from so many standpoints, there must be wide differences of opinion as to what is the best dental education. There are just as wide differences of opinion as to how such an education should be obtained. A good dental education should leave a cultured gentleman, refined in tastes and feelings, capable of taking a broad view of his function in this world, and a full appreciation of his duty to his patients and to humanity. He should possess the technical knowledge and skill of the surgeon, the physician, the artist, the engineer, and the mechanic. These and other necessary accomplishments are not easily developed or acquired. Without going into how each part of so

broad an education may be obtained, may we again call attention to a feature of dental education in Canada which does not always develop that broad education required by the dentist?

Should students in preparation for a professional career be apprentices? Certainly not, is the answer of the present time. Many of the trades are not learned by apprenticeship, and it is only a question of time until none are. Trades will be learned in schools for that purpose, and why should dentists continue an obsolete method of education.

Some years ago, Dr. G. S. Martin, Toronto Junction, questioned the advisability of continuing compulsory pupilage as a part of our dental educational system. There seemed to be few, if any, at that time who thought as he did. Almost two years ago, the Journal expressed similar views, and at that time pointed out that in order to graduate in dentistry a student who matriculated in July would be required to spend five years to complete his course. This has been changed, however, and now in three and a half years the student takes four courses at college, and graduates. The next step is a short one, and quite natural: Substitute spring courses in the college for the summers now spent in a preceptor's office, as was suggested by "Common Sense" in the June issue of the Journal. There can be no argument against a spring course, and up to the present time no one has championed the continuance of preceptors. A few days ago this subject came up for discussion at the Eastern Ontario Dental Association meeting at Brockville. Judging from those who took part in the discussion, and those spoken to privately, preceptors, as a part of our educational system, must go. There seemed to be little difference of opinion expressed. Some of the young men lately from preceptors and college, said that they would prefer college instruction. Dr. Hanna and Dr. Adams, two members of the Board, expressed themselves as satisfied that something must be done, as preceptors had little or no use for a student during the summer months, which will hereafter be the only time students will have to spend in an office. Whether a spring course in college would fulfil all that was desired would depend upon how it was conducted. At all events there must be an absolute control of students from the time of entering college until graduation. No shisterring around during holidays can be tolerated, as is sometimes done by American students. There



is no such danger in Canada, as all our students are under our control, and would be more under control under the new conditions than they are now under preceptors, who are in the habit of sending them to peddle about the country. The opinion was freely expressed at the Brockville meeting that neither students nor preceptors lived up to the requirements of the college. Nor is it possible to do so. It is our opinion, after years of observation, that fully 90 per cent. of the students and preceptors who sign the documents required by the college, do so knowing they are assenting to a falsehood. The truth is, it is impossible to live up to such agreements, hence they are not respected. This being the condition, it is better for our morals to remove the cause of our weakness.

There does not seem to be any clear idea of what a spring course should consist of. Under our present system, it is expected that a student shall have an opportunity of practising in his preceptor's office the instruction he has gotten at college. This is just what a spring course can do far better than any preceptor. After the examinations are over, the infirmary may be opened again for patients. The students should be required to begin practice, first, second, and third year students alike, grading the work according to the attainments of the student. There should be not more than one lecture a day, and it on practice—no dummy work, real practice on real patients under instructors. The course to last at least two months, and be compulsory. The privilege of taking a preceptor in lieu of the third spring course to be granted on the approval of the Board. There would then be no improper preceptors. If our course in dentistry were modified as here suggested, it would be on the same lines as that in England, where the student now takes the college as a preceptor, and it would also be the same as that required by the Ontario Medical Council, which requires a preceptor after four years' college work.

With a spring course running at the college it would be an easy matter to conduct a practitioner's course each year. There would be an abundance of patients; the staff would be on duty; and an opportunity of getting the very best instructors in the profession to come for a few days, or a week, without any expense other than his salary. The profession is anxious for another spring course. If anyone doubts the advisability of doing away with the full preceptor's course in our dental educational

system, let him read the article referred to above, which appeared in the June number of the Journal, over the signature "Common Sense," and if he have any opinions to offer, the Journal will gladly give them publicity.

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### SEND US YOUR THOUGHTS FOR PUBLICATION.

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The Journal has increased the number and size of its reading pages until it now corresponds in size to any journal published. The quality of its matter speaks for itself. There is no doubt about its being read by the profession of Canada. At a recent dental meeting, an article that had recently appeared was referred to by one of the speakers, and, as was hardly expected to be the case, almost every dentist present had read the article referred to. The editors of other journals are careful readers of the DOMINION DENTAL JOURNAL, as is shown by the many quotations gathered from its columns. This is a compliment to Canadian authors, and gratifying to the publishers. There is an abundance of good Canadian matter to always fill the columns if it were only sent in for publication. It is out of the question for the Journal to send reporters to all the meetings in Canada to get reports. Every society and every dentist should have a desire to see his own society and his own thoughts recorded in his own Canadian journal. To this end we hope to hear more frequently from our old correspondents, and to hear from many new ones. We are always glad to publish notices of meetings, together with their programmes. There are many societies in Canada which do not report their proceedings. This is unfair to the society, and unfair to the authors of papers which are read before it. No writer wishes to spend months in preparing a paper if the audience is to be only ten to twenty members, while if it were published, the audience would be thousands. Many societies, and some authors too, think that what they have may not be worth while. Such is not the case in Canada. There is much merit in the most of our contributions. We wish to thank our many helpers, and hope to thank many more next year. We trust that our columns will always be filled with Canadian matter, which cannot be done except by the goodness of our friends.



## Editorial Notes

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THE stenographer who made the report of the Ontario Dental Society for 1903 has lost a portion of the manuscript, which leaves the report incomplete, and has caused much delay.

How to prevent a mouth mirror from being scratched by a stone in preparing teeth for crown work. Place a moistened microscopic cover glass upon the mouth mirror. If the stone should mar it, it can easily be replaced, thus saving the mirror many a scratch.—X. Dodel.

THE June issue of the *American Dental Journal* puts what most people would call a five-page advertisement of Carmichael's Crown and Bridge system among its original contributions. The editors should put their foot down on mixing up original matter with advertisements.

THE Committee known as the Army Dental Corps Committee of the Canadian Dental Association, has had several meetings with the Minister of Militia, who has been disposed to favorably consider the question of having dentists appointed to the army. The committee will publish a full report as soon as conditions are favorable for such a report being made public.

At a meeting of the Association of American Medical Colleges, recently held in New Orleans, La., it was agreed that the superintendent of Public Schools should examine the applicants for entrance in a medical college as to literary competency, and not the faculty of the medical college; also that no advance standing should be given in the medical course to graduates in dentistry, pharmacy, or veterinary medicine.

IN the October issue, 1902, the *Journal* said, "If we are correctly informed the Harvard Dental College is not above granting a D.M.D. degree in a very much less time than that laid down by the Faculties Association." Our informant it seems was correct in stating that the gentleman in question had received a D.M.D degree in one year, but he was not aware that, after 1900, no such privileges were given L.D.S.'s of England, by the Faculties Association or by Harvard Dental College.

**MEN DRINKING LESS.**—The time has gone by when a man can drink with impunity in any calling—manifest, alcoholic indulgence has ceased to be respectable. Children of all ages, and stages of growth, can best be temperate and manly by being taught that health, physical, mental, and moral, can best be secured by eliminating alcohol and tobacco from their lives, both of which lower their vitality, blunt and obtund by continued use, the intellect and the moral character. In my judgment a strong argument against tobacco with the young is, that it not only retards physical and mental growth, but it invites and favors a demand for alcoholic and other stimulants.—Ed. *Med. Mirror*.

DR. C. H. REYNOLDS, of Strathroy, who has been giving the pupils of Melbourne Public School instruction in penmanship on the days of his professional visit there, has closed a second term, Dr. J. G. Wilson and Dr. S. Wolverton, of London, performing the arduous duties of examiners. Dr. Reynolds awarded the diploma to Harry Griffith, the successful contestant for the prize offered, the one making the most progress. Isaac Bennett, May Stevenson, Eddie Wellman and Kate Coulter followed closely in order of merit. All the pupils were highly commended for the improvement made under their skilful master. The diploma is a handsome lithographed design, artistically filled in with the pen.

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# Dominion Dental Journal

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## Original Communications

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### SOME ESTHETIC FAILURES IN MENTAL PROSTHESIS WITH SUGGESTIONS FOR THEIR AVOIDANCE.

—  
BY J. B. WILLMOTT, D.D.S., TORONTO.  
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While great advance has been made in the treatment of pathological conditions of the teeth and associate parts, and in the materials and manipulations for preserving the natural teeth, but little advance has been made in the art of replacing lost teeth by artificial dentures. Since the introduction of hard vulcanite as a base, more than forty years ago, and celluloid a few years later, practically nothing has been added to our equipment for aiding those who have been so unfortunate as to lose their natural dentures. Nor with the materials in use, have we improved to any appreciable extent, the artistic results of our work in dental prosthesis. Many causes have probably combined to hinder progress in this direction, not the least, however, has been the tendency in many quarters to belittle what is somewhat contemptuously styled "mechanical" dentistry. Everyone who has had any experience in connection with dental college work has observed that with very rare exceptions, students are far more anxious to become expert operators than skilful and proficient in the line of prosthetics. I presume that it is a very common experience with the heads of the prosthetic departments in our schools, that it is exceedingly difficult to induce students to properly appreciate the importance of this branch of dentistry, and to give the time and attention necessary to acquire more than a mere perfunctory acquaintance with it. To "pass" largely marks the limit of their ambition in this direction. One of the problems before

the profession to-day is, How may we excite to greater interest and enthusiasm in this subject, not only in the student but also the practitioner? But this is only distantly germane to the subject I have attempted to discuss.

In undertaking the insertion of an artificial denture the operator has, or should have, in view at least three distinct and important considerations: (1) The restoration of the lost function of mastication; (2) The restoration of the partially lost power of distinct articulation; (3) The restoration, or preservation, as the case may be, of the profile and expression of the patient. The first two are what may be called the practical aspects of the operation and, so far as health and comfort are concerned, may be considered as the most important. In the hands of competent practitioners these are, in a great majority of cases, fairly well accomplished. Unfortunately, as much cannot be said for the artistic result. When all the teeth are removed from both, or either maxilla, absorption of the alveolar process takes place, the bone being followed by the soft tissues immediately attached to it. The change, both in size and outline, of the base upon which rests the muscles of expression must of necessity change the form and expression of the face. To prevent this change, or to restore the original form, if already lost, and so conserve or restore the natural expression, is the artistic duty devolving upon the worker in dental prosthesis. In the change of expression two main factors have been concerned, the loss of the teeth and the loss of the alveolar process. If the expression is to be restored both of these must be replaced to secure artistic or esthetic results.

In consequence of the changes in anatomical form which take place under the conditions named, and especially in connection with the canine eminence, it may be frankly admitted that perfect restoration of the form of the base on which the muscles of expression rest, cannot be accomplished, and consequently, where all the teeth are lost, the expression must, to some extent, be permanently altered. Speaking generally of the great mass of people who wear artificial dentures, to assert that this change in expression is very much greater, and is everywhere very much more manifest, than it need be, is a statement that will scarcely be questioned by a professional audience.

This, however, is not the only source of esthetic failure in dental prosthesis. Some time ago I asked an intelligent lady, who is not a dentist, is not specially endowed with the artistic taste, but who has at least an average appreciation of the harmonics in color, form and size, how she most readily detected artificial dentures, as she was brought into contact with people. The reply was prompt, "Teeth are too small, too white, and too even, especially on the incisal edge."

Surely the fact that artificial dentures are so generally cap-



able of easy detection, by persons not in any way instructed in the art of dentistry, indicates an artistic failure so widespread, as to suggest that it cannot all be inevitable; that it might be, and should be, very greatly lessened. To assist in giving point and definiteness to this discussion, permit me to tabulate six of the more common esthetic failures, and then to consider them *seriatim*; (1) Teeth are too small; (2) teeth are too light in color; (3) teeth are too perfect in alignment; (4) teeth are not adapted to age; (5) muscles of expression are not sufficiently supported; (6) profile injured by too close an occlusion. These defects may be divided into two classes: Those which are only apparent in conversation or in laughing, and those which are apparent when the features are in repose. The first four will fall into the first class, the other two into the second class.

What is the effect of choosing "teeth that are too small?"

1. *They are out of harmony with their environment.* Nature permits a considerable latitude in this respect before the lack of harmony becomes marked. This limit is, however, so often, and so greatly exceeded, that the defect has become sufficiently common to be noticed by patients themselves. The worst result, however, is not want of harmony. Where teeth which are too small are used the cuspid comes forward so that it cannot perform its function of giving character to the features, and the expression becomes weak and insipid. Then the first bicuspid comes forward into sight, so that eight, instead of six, teeth are clearly in view when looked at from directly in front, giving the impression of "too much teeth," and, especially when light in color, presenting the appearance of a white band stretched under the lip. A good rule is to fix the position of the cuspids and select laterals and centrals to fill the space. It is objected, with a great deal of truth, that patients will not accept teeth that are sufficiently large. Last year at the Maritime Provinces Association, this matter was under discussion, when a gentleman stated that he never made a denture which did not entirely conform to his best judgment of what the case required. Observing a look of incredulity spread over the faces of his audience he hastened to add, "I don't have to." In these days of increasing competition, I fear his experience is unique. Most of us, I imagine, feel it necessary to pander more or less to the whims, fancies, and prejudices of our patients. We ought, nevertheless, to educate them. How? A very good plan for young practitioners, and not bad for older ones, is to make a collection, as opportunity presents, of models of good natural dentures. These will illustrate the relation between size of tooth and size of maxilla, and will assist in securing the acquiescence of the patient.

2. *Teeth are too light in color.* It is amazing what a large percentage of those who apply for artificial dentures had

originally "beautiful, small, white teeth," and, of course, this is the class of tooth now desired. The basis of the difficulty in making a proper selection, is the absence of the sense of harmony in the assembling of colors. The patient who wears, yellow, blue, green and orange trimming on the same hat without any consciousness of the incongruity will hardly discriminate intelligently in the color of teeth. Whatever of failure is manifested in this direction is, however, largely the fault of the operator. Patients are more amenable to teaching than in the matter of size. There is but one way in determining a suitable color of tooth for any given patient, that is, trying it in the mouth—not a single tooth, but at least the anterior six—and judge them in the environment in which they are to be placed. No amount of theoretical teaching about temperament in relation to tooth color will ever enable a practitioner to certainly select a suitable color without testing in the mouth.

3. *Too even in alignment.* I have recently had the opportunity of comparing the articulated plaster casts of the impressions from eighty young people from eighteen to twenty-five years of age. After forty years' experience the casts have been a revelation to me as illustrating the variations from perfect evenness in natural dentures. The fact that an unusually perfect set of natural teeth is commonly suspected of being artificial is sufficient evidence that we follow too rigidly the "perfect ideal" in the arrangement of the teeth on our dentures. Nature rarely gives us this "ideal." Probably the best method of getting so familiar with natural alignments, that we can closely imitate them in artificial dentures, is to be found in the careful study of considerable numbers of articulated casts of natural teeth.

4. *Teeth are not adapted to age.* An artificial denture which, as to general form and appearance of the teeth, is quite suitable in a girl of twenty, would, if worn by the same patient at seventy, be as much out of place, quite as absurd, and as clearly artificial, as golden hair and a pink-and-white complexion would be at that age. It is objected that if the lady had retained her own teeth they would be the same she had at twenty. Very true, the same teeth, but showing as clearly the result of advancing years as the hair or complexion. In early life the incisal edge of the incisors is convex; the mesial, distal, and labial incisal angles are beautifully rounded; the point of the cuspid is sharp. In middle to old age, as the result of wear, the incisal edge becomes straight or concave, the mesial and distal angles sharp, the labial incisal angle sharp and nicked, the cuspid is blunt, and the alignment usually becomes somewhat more irregular. How often do we attempt to imitate these changes? A set of teeth made from the same mould as would suit our young patient, but chosen several shades darker, can, by the skilful, and not very



extensive use of the carborundum wheel, be made to closely resemble what thirty or forty years of wear would have done for the natural teeth. If single teeth are used, a little irregularity of alignment, and possibly a little recession of the gum, will complete the natural change, and constitute an artificial denture wholly in harmony with advanced years.

The "esthetic failures" we have thus far considered are only revealed when the movement of the lips in speaking or laughing has exposed the teeth. Other serious failures are manifested when the features are in repose. These are of two classes: One characterized by a thinness of feature and a sinking of the lips and cheeks quite out of keeping with an otherwise full and well rounded physique. The primary cause of this condition is either the prolonged absence of any teeth, natural or artificial, or the wearing of a provisional denture, generally, though quite incorrectly, called a temporary denture, long beyond the time when it should have been replaced, in many cases for several years. In either case the muscles of expression which should have been supported have sunken to make contact with the shrunken maxilla, have themselves shrunken, and have become somewhat permanently adapted to their changed and contracted support. When these cases are extreme, and have been of long standing, restoration of expression is hardly possible. If in such a case a dentist were to insert a denture that would raise the lips and cheeks to their original position, the effect on the expression would be such that neither the patient, nor the friends of the patient, would tolerate it. If patients could be made to understand that in process of weeks, perhaps months, these muscles would adapt themselves to the improved support, their normal function be recovered, and the original expression gradually restored, they might put up with the present unsightliness, and wait patiently for finally satisfactory results. An alternate remedy would be to make a series of dentures at intervals of, say, six months, by each filling out slightly the sunken tissues, until restoration was completed. In a large proportion of cases, neither of these propositions are practicable. The only remedy is prevention. If a dentist desires to permanently maintain a normal expression no falling of the mobile tissues of the face should be permitted. The mouth should not be for more than a few days without a denture. The provisional denture should support in their normal position the lips and cheeks, even if to secure this the fulness, at first, should be excessive. Satisfactory final results will far more than compensate for present inconvenience, extra attention, and, of necessity, extra expense.

The last of the esthetic failures to which I shall refer is due to too close a bite. The result is a shortening of the face, the

projection of the chin, the protrusion of the lips, a falling in and puckering of the cheeks, the whole producing the expression characteristic of old age. Recent observation proves that this defect is quite common. An examination of a considerable number of articulated casts, shows the average distance from the festoon of the gum of the upper incisor to the festoon of the gum of the lower incisor to be fully half an inch; add three-sixteenths of an inch for the shrinkage from the full absorbance of the alveolar border in each maxilla, and we have a medium normal separation of edentulous jaws at the median line of proximately seven-eighths of an inch. Articulated artificial dentures measured with callipers show separation of from one-half to five-eighths of an inch, an unnatural closing of the bite of from three-eighths to one-quarter of an inch. Apart from the expression of premature age, another difficulty occurs where the shortening is mainly in the upper teeth. The lip falls below the incisal edge and interferes with distinct articulation, to remedy which the patient, in speaking, makes very awkward efforts to raise the lip out of the way. When, in closing the jaws, the mandible is raised appreciably beyond the point where normal occlusion of the teeth would occur, the peculiar mechanism of the tempora-maxillary articulation throws the symphysis of the chin forward, a projection which increases as the mandible is raised. The result is to entirely change the profile, and, of course, to materially and adversely affect the expression. An individual who decides to exchange his natural teeth, or what remains of them, for artificial ones, enters on an uncomfortable transitional period of proximately eight months, before permanent dentures can be satisfactorily inserted. It is during this period that these changes take place, which, if not properly counteracted, permanently affect the form of the features. As a means to a desirable end it is a good practice, when it is decided to remove all the teeth from either jaw, to first take an impression, make a model, and on it fit a trial plate, filling spaces left by missing teeth with sufficient wax, so that when placed in the mouth the teeth of the opposite jaw will close into it, thus securing an accurate bite. When the teeth are removed, take impressions and make models of both jaws, place the trial plate on the edentulous model, fit the teeth of the other into the depressions made in getting the bite, and transfer the whole to an anatomical articulator. The result is a perfect articulation, showing exactly the normal bite. Open the bite to compensate for half the anticipated shrinkage, and construct a provisional denture. The other half of the shrinkage may be readily dealt with, and the normal bite restored when the permanent denture is inserted. If the teeth of both jaws are to be replaced, by far the best results, from the esthetic standpoint, will be finally attained by dealing



with them separately; completing the permanent replacement of one before extracting the teeth from the other. Before extracting these last teeth follow the procedure just outlined, using the artificial denture in one jaw to obtain the normal bite.

The subject is interesting and inviting, but the time limit is nearly reached. Leaving detail, and reverting to the general in this discussion, it may be observed that visible improvement in the esthetics of dental prosthesis will take place when adequate attention is given to it in our dental societies; when prosthetic dentistry is taken out of the hands of men who have had no training other than the technical, who know nothing about the anatomy or the functions of the tissues concerned, and who have no artistic tastes or appreciation, and placed entirely in charge of men scientifically and artistically trained. Improvement will probably be more marked when the men high in the profession cease to do their prosthetic work by proxy, taking the impression and the bite, selecting the tooth color, and then handing the whole thing over for completion to a workman who never saw the patient. If even partial esthetic success is ever obtained by this method it must be purely by accident, certainly not as the natural sequence of intelligent efforts to a desired end.

#### DISCUSSION.

Discussion opened by Harold Clark (Toronto), who said that in many cases where the bite had been allowed to close, by too long use of a provisional denture, it is very difficult to persuade the patient, and particularly the friends, that there should be an increase of the distance between the chin and the nose. They have become accustomed to the sunken and wrinkled lips, which, when forced into proper position by a new denture which opens the bite, gives the patient the appearance of not being able to close the mouth. No doubt this condition is overcome after the denture is worn for a time. Dr. Warrington Evans, of Washington, has suggested the use of teeth that were formerly used in celluloid work for dentures made on a rubber base, because these teeth have no ridges at the junction of the sides with labial surfaces near the neck. With these teeth irregularities may be made which do not look awkward like those with the thick necks used in vulcanite work.

Dr. E. A. TESKEY (St. Thomas) thought the paper a very excellent one, and one that should be carefully read. Prosthetic work in the past years had been much neglected, and our young men were very deficient in this most important department of practice. The fault must be with the preceptors of the colleges. Prosthetic dentistry is looked upon as scraping rubber.

Dr. A. C. CALDWELL (Dundas).—Many patients are not yet educated to the point when they will appreciate any irregularities

in the arrangement of artificial teeth. Very often an esthetic arrangement for a given patient's artificial teeth may be suggested by a careful look at the natural teeth of some near relative, as daughter, or sister, or brother.

Dr. J. E. WILKINSON (Toronto) said that very often thick plumpers in the region of the cheek will throw the lip forward in much more proper position than building out under the lip itself.

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## RECREATIVE EXERCISE.

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BY A. C. CALDWELL, D.D.S., DUNDAS, ONT.

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"No man is in true health who cannot stand in the free air of heaven, with his feet on God's free turf, and thank his Creator for the simple luxury of physical existence."—*T. W. Higginson.*

More and more, as time goes on, and the mad struggle for supremacy in all walks of life grows fiercer, the professional man sees the necessity for physical, as well as mental recreation, and that the body as well as the mind has rights that must be respected.

Our journals teem with references to the duty we owe our patients. Would it not be well to consider for a few moments the duty we owe ourselves?

As a rule a man following a sedentary occupation takes a sufficient amount of mental relaxation, but it is the exception to find one who takes a sufficient amount of physical relaxation. Few men to-day know what it is to experience the "joy of living" that comes from a perfectly balanced mental and physical organism. The clear eye, the elastic step, the erect carriage, should not be the exclusive possession of youth, and it is no exaggeration to say that if professional men would spend one-tenth of the time in the cultivation of their bodies that they do in the cultivation of their minds they would get a great deal more pleasure out of life; headaches, backaches, torpid livers, would be things unknown, and the individual's working power would be increased one hundredfold.

Health is a large ingredient in what the world calls talent. A man may be a giant in intellect, but without health his deeds will be those of a dwarf. Better far have an ordinary mind in a colossal body than a colossal mind with a crazy constitution. In any of the learned professions a vigorous constitution is as essential as a vigorous brain, and this is specially true of den-



tistry, for what will the sharpest instrument avail if the hand that guides it be not steady and true.

The men of ancient Greece and Rome paid great attention to physical culture. The practice of gymnastics and calisthenics was not confined to the boxers and wrestlers alone, but the orators, philosophers, poets, warriors and statesmen of those countries gained strength of mind as well as of muscle by the systematic drill of the palestra, and, no doubt, the intellectual power of those giants of antiquity, Aristotle and Plato, was owing in a large degree to that harmonious education, in which the body shared as well as the mind. It, however, requires a good deal of perseverance to take systematic exercise, and how many of us, recognizing the need of something of that sort, have started on a course of club swinging and dumb-bell calisthenics, which lasted but a few mornings.

Exercise, to get the best results, should be as recreative and entertaining in its nature as possible, and it is very questionable whether the gymnasium is the place for the tired practitioner. Few men have a capital stock of stamina that will admit of being taken out at both ends, head and heels, at once. Rather stick to the open air and be assured that a three-mile tramp over the golf links, supplemented by the healthy exhilaration of a contest, will prove far more beneficial than a like amount of time spent inside tugging at sundry chest-weights and rowing-machines.

In looking over the field of recreative exercises available to the dentist, one is at once struck with the large variety of pastimes, some one of which should appeal to almost any member of the profession.

Golf, which comes nearest in the writer's opinion to being the ideal form of exercise, should prove attractive to the older men, and to those who can arrange to take an occasional holiday away from the cares and worries of practice. Tennis is another game that requires a good deal of skill and a good deal of exertion on the part of the player, and is one of the best pastimes for one whose time is limited. It is to be regretted that horse-riding, that form of exercise to which our grandfathers owed their freedom from gout and torpid livers, has not more devotees than it has. Then there is lawn bowling in summer and curling in winter, and wheeling and canoeing and camera hunting, and numerous other amusements, which, while furnishing a good deal of entertainment for the participant, at the same time demands a certain amount of bodily exertion.

In this day when life is lived at fever heat, the mental wear and tear so enormous, when men are devoured by an insatiable ambition and scourged by a merciless activity, it behooves each one of us to accumulate all the vigor, all the "healthy animalism," if I may be allowed the term, that can be drawn from sport or play, to so fit our bodies that we may have sufficient vital power

to enable us to pursue our calling with the greatest amount of comfort to ourselves and usefulness to our patients. Let every man have a hobby—an open-air hobby—one that will take him out of himself and place him in close communion with nature and all her lovely works, which will not only furnish him with a good deal of pleasure, but with proper cultivation will prove to be an infallible cure for the “blues” and all kindred ailments.

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## OVERCROWDED CONDITION OF THE DENTAL PROFESSION AND THE REMEDY.

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BY CHARLES H. REYNOLDS, D.D.S.

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Having taken a view into the general modern practice of dentistry, and that of the past, the idea suggested itself that a paper on the above subject would not be out of place on this occasion.

Before entering directly upon my theme, I will give an outline of the position our favorite science occupies in the intelligent mind to-day.

It is declared that dentistry is one of the liberal professions, a healing art, a branch of the broad profession of medicine. “It has for its object the alleviation of some of the physical ills of mankind.” As it is to-day taught in our schools, and practised by the progressive dentist, none would question this declaration. The oculist, aurist and laryngologist are governed by the same rules in general pathology and surgery as the stomatologist. “No man can practise dental surgery upon scientific principles without practising medicine every day of his life. Its principles (those of dentistry) can only be learned by the study of the principles of medicine and surgery.” A resolution passed by the American Medical Association settles the point in question, “Dentists in good standing shall be recognized as members of the regular profession of medicine, being eligible to membership in above association, precisely upon the same terms and under the same conditions as the general practitioners.” Dentists are registered as special practitioners. This proves we are nearing the border where all medical specialties will come under the broad seal of M.D. The dentist of to-day is considered an educated man. His scholastic training is either collegiate or based upon long experience in general reading and professional practice. His office is found equipped with a good library and a liberal supply of remedies and appliances essential to a successful practice. The general practitioner recognizes in his brother dentist sufficient skill in surgery



for professional consultation in his specialty. The writer has successfully treated cases of tumor and fractures of the jaw handed over to him by the general surgeon.

Are we then, as representatives of this honored profession, striving to elevate its moral and social standing? or, are we practising it for pecuniary success? How absurd to spend years of arduous study gaining the pinnacle of fame, and then descend so low as to employ illegal help to diagnose, prescribe and give advice, or perform delicate surgical operations upon the mouth. Our practice should not be entrusted to such hirelings. Do we find a physician allowing an unregistered person to put up medicines, amputate limbs and visit the sick professionally, for him? Whom would a pharmacist engage for the compounding of prescriptions and private receipts? A lawyer never leaves his clients in the hands of an unarticled clerk. The author of this paper found this true during his experience as a law clerk in Toronto. The primary aim of the fathers of dentistry was not to have our profession drift in lines of the ordinary trade, which appears to be the general tendency at the present time. Dentistry is medicine. An educated dentist is a physician and surgeon. The statutes of New York recognizes this fact. The illustrious Dr. James E. Garretson, whose name is familiar to us all, said he saved more teeth by constitutional treatment than by manipulation. The following is a portion of a letter from the late Hon. David Mills, to the writer of this article: "A doctor of dentistry may practise medicine in so far as his medical treatment is incident to his profession as a dentist. In this respect he stands in the same relation as a surgeon, who is entitled to practise medicine in so far as medical treatment is called for on account of a surgical case. Thus, a dentist may find that the affection of the teeth is due to constitutional condition of his patient, and so he would be entitled as a professional man to treat his patient medically for the removal of pain in the teeth. If all the teeth appear sound he must consider whether his duties are not to treat the case constitutionally by the use of medicines, rather than surgically by the use of the forceps. He is, so far as the treatment of the teeth is concerned, a mechanic, a surgeon and a physician, and the responsibility rests upon him in every case to decide in what capacity he must act." Who can refute these statements? Then let us, even if a sacrifice is necessary, return to the original principles as laid down by such eminent men as Dr. Chapin A. Harris and others, and be true to them.

From time to time much has been published on various subjects relating to the progress of dentistry, with benefit to all concerned; but little has been put forth for better government of its actual practice, with profit to the purse. The point I desire to emphasize is, that the profession is overcrowded and flooded with cheap unlicensed labor; especially in the large cities. The gradu-

ates are far in excess of the requirements of the day, yet they are on the increase. Here is an instance: London in 1876 contained five dental offices, with a population of 18,500. A set of teeth was then \$20.00 and \$5.00 the ordinary fee for a good gold filling. To-day London proper contains a population of 32,000; with a dentist for every thousand, and nearly a dozen students, not including unlicensed help. Another place, at same date, enjoyed a population of 4,000, had two dentists, no students. At the present time this town can boast of four residents dentists, and a number of students. According to last census its population is 2,936. In one of our thriving towns during a period of twelve years, six dentists who were there in practice, "pulled up stakes" and sought locations elsewhere. In a village of 309 inhabitants two dentists have been making weekly professional visits on the same day. In another, with a population of 400, three dentists have an interest. A similar state of retrogression may be observed in other places. At this rate what may we expect during the next decade? We have already sufficient dentists for the country's necessities if not another were added to our ranks during the next twenty years. In the State of New York the requirements for graduation or license to practise are so rigid that the population is increasing more rapidly than the dentists. It is asserted that upwards of 215 students attended the last session of our college. Where are they to be located? Who is benefited by this crowd, the faculty or the profession at large?

Under the present existing state of affairs the time has come when a radical change is necessary, and extreme measures should be adopted for suppressing this quackery and charlatanism, which is alarmingly on the increase, much to our loss.

It is said the material of the rising generation of dentists consists largely of those who are urged in, regardless of their natural ability; not like our forefathers, who voluntarily chose dentistry for the love of it; possessing the intellectual capacity for developing their taste in that line. In the pioneer days of dentistry there were comparatively few practitioners, consequently each had extended territory. Most of them were men of noble minds, broad in their sympathies and thoroughly imbued with the loftiest hopes, aims and aspirations for the profession of their choice, enjoyed a lucrative practice and commanded high fees. Though not organized as now, they were a model worthy of emulation for the succeeding generations of dentists. If we are to succeed, the spirit in which we do our work must be the same as that in which they did theirs. Little did many of us dream when we resigned our former vocations to join the ranks of the dignified calling of the science and practice of dentistry, which was then destined to take the lead among the liberal professions, that a few years hence—yea, in the dazzling light of the twentieth century, when the greatest discoveries in the scientific world have been brought out,



we would again survey our fair province from a professional standpoint, and be forced to exclaim: "How are the mighty fallen!"

Surely, during the past quarter century, the profession and its teachings have undergone a radical metamorphosis, broadening the standard of admission and graduation, and increasing the length and grade of the curriculum; also new branches and improved methods have been introduced, and university relationship established. While these changes are steps towards advancement, the profession is a failure as regards individual financial gain. The doors of the dental college are thrown wide open, inviting all who desire to enter; the more attraction offered the greater the number seeking to qualify. As members of a learned profession we launch out into practical life, yet fail to receive the same recognition as our brothers in the other professions. Owing to the present state of affairs the large majority are compelled to administer their services much below the fees of our forefathers, thereby weakening their influence and lessening their opportunities for usefulness in the various walks of life. Now the pioneer days are over; the world's machinery has changed immeasurably. The country is greater in wealth and population; people in general are better educated to appreciate the care of the teeth and services of the dental surgeon; dentistry is more widely known and regarded as a branch of medicine, and practised as a medical specialty; yet, with all these advantages, the fees do not correspond with our professional standing. Why must we so underrate our labor and learning? Court dentists, and not a few others of the same craft, who place a high estimate on their calling by making princely charges for professional services, are distinguished in their position and brought into greater prominence thereby. Teachers, physicians, lawyers and others receive handsome compensation for their services; where are we? As a body we ought to be strong and flourishing, with only one college, and sole authority to protect our best interests; but, alas! we are not. What are the future possibilities for solving this problem? What present means shall we employ for instituting this much needed reform? Our board claims the power to gauge the standard for matriculation and graduation in dentistry; to grant licenses; to reject, and fine heavily those who violate the dental laws; and can go so far as to take the license from a dentist. If this exercised power is to protect the public, should not the board possess sufficient power to protect the profession as far as it is possible? Could not the members of our incorporate institution, the Royal College of Dental Surgeons, join as one brotherhood, with a fraternal spirit, and direct the board to frame laws for better protection? Here are a few thoughts which might be utilized in the enacting of new laws. Limit the number of students entering college each term; supplying licentiates accord-

ing to the requirements of the population, or close the doors of the School of Dentistry for ten years at least, when the present classes have completed their courses, and at the same time prohibit all licentiates receiving new students during this period. The operations of the meetings of the associations may continue, with the same object as first intended, for mutual improvement and modern investigation. A more uniform tariff of fees should be adopted to suit the important position we have assumed as doctors or specialists. Then we shall have a larger field and be sufficiently independent to enjoy shorter hours, with advanced fees, and no necessity for encouraging students and cheap labor to help us out with our work. We may thus be spared the abasement of having our profession called a "business" or "trade"; and our office termed "factory," "parlor," "emporium," and other names not becoming our high position. Some enjoy making it generally known that they have several hands working for them. Were there less boasting by certain dentists fewer would be induced to enter the profession. It is the above class who supply the college with the over-abundant stock of students. If the foregoing suggestions appear impracticable, why not discourage admitting students for a few years, which will be a means of lessening the increase of licentiates? A profession does not make a gentleman, but refinement and education will.

The dentist should allow himself sufficient leisure for mental and physical recreation, that when professionally engaged he may be fresh and full of enthusiasm. Ample time should also be devoted to modern research and further scientific study; thereby aiding the profession in its steady progress for the betterment of science and the community. Thus the elevated character and standing of our profession will be recognized, making those who have attained a degree of eminence in the world of letters, more worthy the confidence of an enlightened public. In conclusion, let us unite our intellectual forces through the journals and associations, without further delay, in the discussion of this question, which has been so little agitated that the minds of our brother practitioners may be so impressed as to realize the grave necessity for making a strong move to remedy this growing evil, and thus forward it to a successful issue.

#### DISCUSSION.

H. R. ABBOTT, London.—I regret that I did not have a copy of the paper so that I could make a suitable reply. I must compliment the essayist on the general excellence of the matter contained, although I cannot agree with some of the recommendations, neither can I agree with him in his comparison of the present with the past. I do not think the writer has a correct appreciation of the motives that actuate the present or recent



graduates of the Royal College of Dental Surgeons, when he says that they suffer in comparison with those of long ago. All praise to those grand old men who, with few opportunities, made such success; but are the men of to-day lacking? I say, Mr. President, decidedly "No." The men of to-day are the peers of any who have walked God's green earth, and the Royal College of Dental Surgeons have graduated men, who will not suffer by comparison with any who have preceded them. I need not mention names. They will occur to all of you, men whom their brethren delight to honor, and who have proved themselves worthy of all that they have received, and more, for they have given freely of their time and talents to show to those less gifted by nature, or less fortunate in their environments, that dentistry is a grand profession, worthy to stand on its own merits, and one that does not ask to be considered a specialty of any other profession, but one which is equal to any. I quite agree with the writer when he says dentistry is a profession, not a trade; but I do not just understand what he means when he asks, "Are we then, as representatives of this honored profession, striving to elevate its moral and social standing, or are we practising it for pecuniary success?" Well, certainly, we are not in it simply for our health; but I can say, without fear of successful contradiction, that the dentist of to-day occupies a higher social and professional standing that he did, say even twenty years ago, and it rests with the man himself whether there is any limit to the height to which he may attain. Certainly the fact of his being a dentist will not to-day bar him from entering the most exclusive circles. Now as to whether the profession is over-crowded or not, for this seems to be after all the question most prominent in the paper; I claim that it is not. The old saying that there is plenty of room at the top, applies here. I admit that there is crowding below, but what an amount of room at the top! How few are there who may be classed as oral surgeons?—and why should not dentists be oral surgeons?—but are we doing all the work necessary? A walk in any of our towns or cities will convince you that there is still more to follow. The writer also says the profession is over-crowded and flooded with cheap unlicensed labor. Now if he or any other dentist will drop a line to any member of the Board of Directors giving any proof of an unlicensed person performing any dental operation, the board will see that such a person is prosecuted and thus remove one cause of vexation. Now as to the remedies he proposes: he says, Limit the number of students, or close the college altogether for ten years. Gentlemen, what do you think of that? Do you think for one moment that the Legislature would submit to our framing by-laws such as those suggested? The very moment they realized that we as a board were passing by-laws for our own protection to the detriment of the public, that moment our powers would be cur-

tailed. The board are at all times willing and anxious to receive suggestions for the better government of the profession in Ontario; but kindly remember that we must, in framing by-laws, consider the public welfare as well as the interests of the profession. As I notice one of my associates on the board in the room, Dr. Frank Adams, I will leave him to reply to those questions that I have overlooked.

DR. FRANK ADAMS, in reply stated: I have listened with a great deal of interest to Dr. Reynold's paper. I was struck with the title, and curious to hear his argument and proposed remedy. I can agree with Dr. Reynolds that the increase of dental graduates has been more rapid than would have been the case had we not invited young men to study dentistry that we might have them in our laboratories. However, this will be remedied by the change in the curriculum, which adds a term to the student's college work, leaving but the five summer months that can be spent in his preceptor's office. We cannot make ourselves a close corporation and shut out all others. We must look to the best interests of the public as well as to our own if we wish to hold our standing as one of the noble professions. The very fact that dentistry has become a profession of more desirable standing than in its days of fewer members, has led more young men of intelligence and ambition to seek a foothold in its ranks. We cannot close the doors as suggested. The college work can be increased, demanding more manipulative skill and technical knowledge, so that the dentist of the future may the better perform all operations and may by advice to his patients prevent the ravages of disease which is sapping the strength of the youth of our country. It is my opinion that the dental graduates of to-day can only begin to perform the dental services that *should* be rendered to the public of the province. More can be demanded of the student, and the public will stay with us, but we cannot control the output of graduates. If it were possible for the board to regulate, as Dr. Reynolds suggests, the number of dentists, according to the population of Ontario, some men would still do more work than others, some would draw more patients, and still there would exist the prosperous and the starving dentist.

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## SOME THOUGHTS ON ORTHODONTIA.

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BY A. E. WEBSTER, L.D.S., D.D.S., M.D.

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Read before the Eastern Ontario Dental Society.

Etiology, diagnosis and treatment are inseparable. A failure in the one means a failure, more or less, in all three. To treat a disease without knowing the cause of it is mere empiricism. No



treatment can be scientific which is not based upon the cause of the disease, and no treatment can be rational which is not based upon a correct diagnosis. In no department of the healing art is this truer than in orthodontia. Observe the lamentable failures made by even our best operators. We all know too well the ridiculous suggestion to extract the first molars to correct any variety of irregularity that may present itself. We all know of the complicated devices which fill thousands of pages of our literature. These opinions and devices are all doomed to failure, because they have not been based upon a correct knowledge of the etiological factors underlying the deformities. Nor are they even based upon a diagnosis of the case to be treated.

It is not always easy to say what is really wrong with a given case of malocclusion. It is still much more difficult to say what is the cause of a deformity. Without first settling these two questions in one's mind, all treatment is haphazard and likely to fail. In the first case, to treat the unknown is foolish, and in the second case, if the cause be not removed there will be a return to former conditions. Hence, the first step in all cases of malocclusion is to make a diagnosis. Second, find out the cause, and then base the treatment upon these. To make a correct diagnosis there must be a knowledge of the normal conditions, and also a knowledge of the classification and the symptomatology of diseased conditions. Then the first study in the diagnosis of an irregularity must be of the normal profile and the different proportions of the face. Since all faces are not alike in these respects, some standard must be taken which fairly represents the proportions of the majority of faces which are said to be pleasing to the artistic sense. The standard commonly accepted is that of the Greek type of profile, a straight line passing from and touching between the eyes on the forehead and resting upon the chin, will just touch the lower lip and pass through a portion of the upper lip, and pass through the alæ of the nose. The face in its horizontal aspect may be divided into three sections by two lines, one passing at the junction of the upper lip with the nose, and the other at the eyebrows, by dividing each of these portions into three sections the lower third will include the upper lip, lower lip and chin, the middle third, the cartilaginous portion of the nose and the bony section. The three divisions of the lower third and the lower divisions of the middle third are all moveable areas under the control of the dento-orthopedic surgeon. The two areas below the mouth, or the two above the mouth, may be changed together or separately. A careful study must be made of the relation of the lips to each other, and of the curves between the nose and chin. No better plan of study of this subject can be suggested than to attend church regularly. Most church-goers find time to take in the landscape around them. It is profitable. A face with a good profile can hardly be uncomely. In cases of pro-

trusion and retrusion it is often very difficult to decide whether there is a protrusion of the upper or a retrusion of the lower, or a protrusion of the lower or a retrusion of the upper. In such cases a careful observation must be made of the poise and form of the whole head, as well as the profile.

The next step towards a diagnosis is a complete and accurate knowledge of the normal occlusion. This knowledge can only come by a careful examination of a number of casts and mouths where the conditions are normal. Dr. Angle, after years of observation, concludes that the first molars and cuspids are the most satisfactory guides to normal occlusion. He says that if these teeth are in proper relation to each other, the profile is usually normal. So in the vast majority of cases, if they are brought into proper relationship the defects in the profile will disappear and the remaining teeth may be readily and easily adjusted to normal occlusion. The mesio-buccal cusp of the upper first molar should occlude on the buccal groove of the lower first molar, and the upper cuspid should occlude with the distal half of the lower cuspid and the mesial half of the lower first bicuspid. Before this society it is not necessary to go through the exact occlusion of the remaining teeth.

Having decided upon a diagnosis, the next step toward treatment is to make a study of what caused the deformity—the etiology. In this paper only a few general principles can be discussed. Conditions which govern normal occlusion are, first, a normal maxilla and a normal mandible. In some cases the maxilla is not in harmony with the other bones of the face, because of defects in the nasal chambers resulting in mouth breathing. The mandible is out of harmony sometimes because of a short ramus on a long body. In cases of mouth breathers the mandible takes a retruded position very often because of habit, the chin is retruded to allow a freer passage of air through the mouth. In the normal state the lips completely cover the teeth when the mouth is closed, and the tongue completely fills the mouth. Thus the tongue presses the teeth outwards and the lips equalizes this pressure from without inwards. Mesio-distally the several teeth stand as a support to each other. In this way the erupting tooth is guided into position, and as soon as the cusps of antagonizing teeth encounter each other they are more completely guided into position, the inclines of the cusps completing the locking of the uppers and lowers together. Inasmuch as the lower teeth erupt first, they usually guide the uppers into position. Taking this view of the normal eruption of the teeth and the forces which guide them into position and maintain them, we have a broader view of what must be aimed at in correcting irregularities, because if these forces cannot be brought into proper relation no permanent result can be expected.

With this view of the normal conditions, what likely happens



where nasal obstruction occurs? The mouth is opened, the upper lip raised. There is no pressure on the incisors, the buccal muscles hang heavily against the erupting bicuspid and molars, the tongue does not touch the uppers at all; the arch is narrowed, which presses the incisors forward to the lower, which retrudes; there is no tongue pressure. The result is likely a protrusion of the upper and also a retrusion of the lower. Continuous thumb or finger sucking has its peculiar effect.

The results of the too early loss or the too long retention of the temporary teeth must be apparent to any one who remembers what forces hold or guide the teeth into position. If, for example, the second temporary molar be lost at seven years of age, the first permanent molar takes a mesial position and when the time comes for the eruption of the bicuspid and cuspid there is no room, and a mesial and labial occlusion of the cuspid is inevitable.

The results of extracting or loss of permanent molars, are much more disastrous than the loss of temporary molars: (1) Shortens bite; (2) second molars tip forward; (3) food crowds in between second and third molars; (4) lower incisors impinge upon the gums of the upper; (5) uppers are protruded; (6) cusps are worn off lowers; (7) never normal occlusion; (8) pyorrhea; (9) loss of masticating surface; (10) irregularity of uppers.

It is often the case that teeth are extracted so that the remaining ones will adjust themselves into harmonious relation. Extraction alone is very rarely of any value, in general it is wholly useless. I have seen cases where as many as four teeth in each jaw were extracted at different times to overcome a crowded or bunched condition, with the result that always, and after twenty-five years the teeth were still bunched, with an added depression of the lips, both upper and lower. The most difficult cases of orthodontia I have ever treated are those where there has been for some reason a noneruption of some of the permanent teeth, and in cases where extractions have been made. There should be a decided and undoubted reason for extraction before it is done; with all the teeth in position it is undoubtedly the rarest condition when the correction of malocclusion is assisted by the extraction of one or two teeth. Nature never makes the teeth of one jaw too large for those of the other. If there should seem to be any disparity in size it is more than likely this disparity is due to difference in arrangement.

## Selections

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### ROOT-CANAL FILLINGS.

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BY JOHN I. HART, D.D.S.

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The properties that should be possessed by a canal filling are as follows:

- (1) It should be capable of completely filling the canal and sealing the apex.
- (2) It should possess antiseptic properties.
- (3) It should be capable of easy insertion.
- (4) It should be durable.
- (5) It should be pliable and moldable.
- (6) It should neither expand nor contract.
- (7) It should not discolor the teeth.
- (8) It should be impermeable to fluids.
- (9) It should be easily removable from the canal.

As you are well aware, we have many root-canal fillings, all of which possess some of the requisites mentioned. In my estimation none of those which are recognized as standard root-canal fillings comply with all these requirements. The one most extensively employed is the zinc oxychloride, but it falls short of the last-mentioned requirement. Theoretically speaking, it is not a difficult matter to remove from a root-canal a zinc oxychloride filling, but in nearly all instances when it is necessary to remove such a filling, it is because of pericemental irritation which renders the tooth particularly sore to the touch, and the last third of the filling is exceedingly difficult to remove and a source of irritation to patient and operator.

In my practice, gutta-percha in root-canals is only of use in sealing the apex of a root which has been enlarged and is to receive a dowel or a post to support a crown; having enlarged the canal, I know when I place the gutta-percha that it is carried to the point which I desire; and in the event of the post loosening, the crown can be reset without fear that infection of the apical space may have occurred; or, in roots which possess unusually large apical openings, I feel safer in filling with gutta-percha, but in a normal root I know of no canal filling which comes closer to our demands than iodoform compound and a tin point.

Knowing the prejudice that exists against iodoform on account of its disagreeable odor, I will pass around for your observation the iodoform compound, in which, owing to the essential oils, the odor is not only decreased, but I think you will not find it perceptible. For those who can deem iodoform too inert for this purpose, aristol or hydronaphthol might be substituted. Tin points, which I here show you, are made so that they can be inserted in the finest canal or in larger canals.



Lead points of a similar shape are furnished, but in my hands are not so satisfactory as the tin, being a trifle less stiff than are tin points. The earliest root-canal fillings were made with gold foil and shredded tin foil, as indicated by Dr. Henry H. Burchard in his article on the treatment and filling of root-canals in the "American Text-Book of Operative Dentistry," as well as gold, copper, and lead points, and wood points dipped in creosote.

In that article I find no mention of tin points, and in conversation with my professional friends I have found that they are not extensively used; in fact, when I desired to get my last supply from the dental depot I was informed that they had given up their manufacture. At my solicitation they accepted an order for a quantity to be made up as a special order.

In Dr. Burchard's article he suggests that "the readily oxidizable metals have not found favor, owing to the possibility of dentinal staining following their employment." I have not found, however, that the tin points used as I shall suggest, present this difficulty. When the canal is ready for filling I measure its length and cut off a section of tin points from some part of the point corresponding to the circumference of the canal, cutting the point somewhat longer than the canal, so that when it is inserted it can be turned over into the pulp-chamber. Then I take a small quantity of the iodoform compound on a smooth broach and pump it into the canal to about half its capacity, taking care that it is carried to the apical end; if any excess be spread on the pulp-chamber wall it is readily removed with spunk. The tin point is passed quickly through a flame, for the purpose not of heating but of sterilizing it, and is then placed in the root-canal, turning over the excess of tin. An oxyphosphate of zinc is placed over the root-canal or canals, and our tooth is ready for its filling.

If there is never any subsequent trouble, we have a canal-filling which, in my estimation, answers all the requirements and which for several years it has been almost my exclusive practice to use. If unfortunately it becomes necessary to open such a tooth for treatment, any time after we reach the pulp-chamber, we can withdraw the tin point and we have a canal ready for treatment without subjecting our patients to the annoyance of the tedious removal of another filling material.

#### DISCUSSION.

DR. HATCH.—I would like to know just what this iodoform compound is, of which Dr. Hart speaks.

DR. HART.—Iodoform, zinc oxide, and oil of cloves.

DR. HATCH.—Do you make it yourself?

DR. HART.—No; it is prepared in Philadelphia by Dr. Foulkes.

DR. M. L. RHEIN.—I do not think the profession has found as yet the ideal root-filling. My own opinion is that of all the

fillings we have at present, chloro-percha followed up with gutta-percha comes nearer to what we are aiming at than anything the profession has at its disposal. Very little attention has been given to the sterilizing of gutta-percha and chloro-percha before using, and I have failed to hear any detail given to that point; but it is a very easy thing to sterilize gutta-percha with formaldehyde before using it, to overcome any possible infection that may have clung to the material. Personally, I think there ought to be no occasion for the removal of a root-filling.

Of course, this brings us back to the ideal condition spoken of in a general way by Dr. Perry in his beautiful paper—a condition of affairs that never should necessitate the removal of a root-filling; and I do not believe that a practitioner who endeavors to reach, as far as possible, that point should seriously entertain the question of the removal of that filling, as far as any of the trouble related by Dr. Hart is concerned.

There is a possibility in crown-work of the necessity of going up into a root, but there we are met with the staple of the crown, not the root-filling. It brings up a different condition of affairs. I simply cite that point as bearing upon the paper that preceded it. It eliminates in my own mind one of the conditions that the essayist laid down as a necessary qualification for root-filling.

DR. HATCH.—Dr. Hanning, speaking of the Soderberg mixture and Dr. Hart's mixture, makes me think we should give a word of caution to the younger men who read this discussion, about placing too much dependence upon the antiseptic properties of permanent root-filling. I take it that there is no antiseptic which will be permanently effective, and the nearer we approach to filling the root in a mechanically perfect way the better off we are. The principal reason why I would use an antiseptic would be the reason Dr. Rhein spoke of—the prevention of any infection then and there. Antiseptics do not stay permanently in teeth, no matter what we put in.

DR. M. L. RHEIN.—I agree so thoroughly with the remarks just made that I want to correct a possible error in what I said. If I said chloro-percha, in regard to formaldehyde, I did not mean that; I referred more to the gutta-percha points. It has been my custom for some time to have those lying in a solution of formaldehyde, and immediately after removing them from that solution to put them into the canal, in order to obviate any possible infection that might cling to the point. Dr. Hatch has struck the keynote of root-sterilization. I would like to echo the strongest affirmative response to that. Our only means of avoiding infection through instrumentation, in the preparation of the root-canal, or by chemical means, is by having a root so free from organic matter that infection from anything remaining in the canal becomes an impossibility. If that be accomplished and every precaution be taken, root-canal trouble becomes almost an impossibility when the canals are sealed.



DR. GEORGE EVANS.—There is this about the subject of root-fillings that I do not understand: how a whole profession seems so blind on certain points regarding the infection of root-canals. It seems as simple to me as anything can be, and I have followed it out for years. I have practised this method for some time and can set the time exactly. I moved from Thirty-fourth Street to Thirty-ninth Street ten years ago next month; and in that time not one single tooth from which I removed the pulp has come back abscessed. It is done on a principle as simple as A, B, C, and I cannot see why it has not been understood. I promised the Institute of Stomatology a paper on that subject three years ago, and I never gave it because I did not get time to write it. I made that statement before some of the members, and they asked me to bring it before the society.

Members get up and state that they fill root-canals with cotton, gutta-percha, wood, and other things, and they have varied success. What does root-canal filling depend on? Does it depend on closure of the apical foramen? There is where they all break down—they talk about the apical foramen. How many teeth become infected through the apical foramen? Not one in a thousand. I have a case now that I am watching. The patient fell on the ice a short time ago, and the central was pushed far in. I put her in the chair and with my fingers forced it up. Tears came to her eyes, but it brought the tooth up into position. It would have been a serious thing if the alveolar process had not united, and I watched it; it has united and grown fast. The last time she came in, about a week ago, to my annoyance, I found the pulp had died and the tooth was slightly discolored. I am going to leave it there and see if it abscesses. So far it has not.

The whole secret is not in closing the apical foramen, as dwelt upon so carefully by Dr. Hart; it is in the closure of the canal! How does the pulp-canal become infected? Ninety-nine times out of a hundred, from the oral cavity. Fill a root-canal with anything you wish in an extracted tooth; put it on the shelf, leave it there for a time, open it, and there is no odor there; but if the tooth were in the mouth it would be different.

I was conversing with Dr. Perry some time ago, and either he or the gentleman associated with him said that he practically fills the end of a root-canal, closing the foramen with gutta-percha and filling up the rest of the canal with oxychloride. He probably has great success with it. Why? Because oxychloride is an antiseptic filling in itself. It is one of the densest cements we have, and it closes and hermetically fills up that orifice. Here is the whole secret: hermetically seal up the orifice of your cavity; keep out infection from the oral cavity through the secretions of the mouth. I do not care even if your filling is loose, if you have the orifice and root canal hermetically sealed, no infection will take place; but if you fill it with gutta-percha, for instance, no matter how much you sterilize it, filling your root-canals entirely

and then placing in an amalgam filling, the patient, ten chances to one, will come back with trouble there. Why? Because all amalgam shrinks, and so the cavity becomes infected around that amalgam. It gradually works up around the gutta-percha, which is never an air-tight filling, and works up around the canal, and infection takes place.

All my success in that line depends on this. The removal of the contents of the pulp-canal is necessary; then the filling of that so that the orifice is hermetically sealed. Some time ago a patient of a most respected friend of ours in New Jersey, a splendid operator, came into my hands, and for some reason I had to remove a gold filling. It was a splendid filling, adhesive gold, packed tight to every part of that cavity and up the root-canal to a slight extent; and, to my astonishment, after getting out the filling, I found the whole root-canal filled with a wad of cotton. I carefully removed it, passed it under my nose, and there was not a particle of odor. How did it stay there all that time? The apical foramen was open, because he had treated an abscess there. How did that occur? He was a splendid operator and he had put in an air-tight, water-tight filling and it had preserved the cotton intact all these years. There was another self-evident proof that I am right. I will not speak about diseased teeth that come into my hands, but where the root-canals have been prepared by me from the beginning; that has been my record, and I did it entirely upon this principle, as I have told you. Infection does not take place from the apex, but from the oral cavity. The orifice of the canal should be hermetically sealed and zinc oxychloride is the thing to do it with, filling a little of the cavity with it under your filling. That is the whole secret.

DR. RHEIN.—I have enjoyed listening to Dr. Evan's earnest remarks. I do not question in the least the results he has accomplished, and I trust he will pardon my simply disagreeing with him as to why he gets these results. My impression is he gets the results for the very reason he spoke of before—because his work in cleansing out the root-canal is absolutely thorough and he has left none of the organic matter in the canaliculi of the root. I must differ with him as to the remark that it is impossible for root-canals to become infected except through the entrance into the canal. I do not doubt that such infection can take place, but I really believe those are the exceptions. It is very true that the infection does not all come from what he terms the apical foramen. There are very few roots that have any foramina inside the roots; the infection can come from those which are almost microscopic in character, and it can come from the peridental membrane; but the point I wish to emphasize is that such infection cannot proceed in a canal that has been thoroughly cleansed of organic matter. That is the reason of Dr. Evan's success, and it is the reason of the success of all of us when we do thorough work. I simply



want to draw his attention to this little pathologic point, on which I take the liberty of disagreeing with him in stating that there are a great many entrances by which infection in root-canals can be effected, and that the most common is through some circulatory form beyond the gingival margin. I take issue on that point.

DR. EVANS.—I said that for ten years I had followed that method, and for the first few of those ten years I did not use sulphuric acid as I use it now, and I did not go to the apex of my canals in many cases, especially some of the canals in molars; in many of them I left them right there, using a saturated solution of aristol in oil of cloves. As to filling tubuli, I never filled any in my life; but I have played the mischief with them with the essential oils and aristol, and, in the beginning, iodoform; but what is the use of having your place filled with the odor of iodoform when you have in aristol all the properties you desire? What is the great essential in iodoform, coming down to the science and pathology of it? It is the nascent iodine that is liberated that comes in contact with organic matter. Iodoform enters into combination with hydrogen sulphide and forms iodic compounds that are liberated. With aristol you get nascent iodine liberated as rapidly in the tooth canal as you want it. Put it in solution with oil of cloves, on one of your probes. Leave it there for a while. You will find iron iodide has already to a certain extent been formed there and you can get it without using iodoform in the manner described. I used to use it, but I have not needed it for years. The perfect sterilization and mummification, with essential oils, of any remnants of organic matter left in root-canals should be done first; then fill the root-canal as well as you can, and hermetically fill the roots. How a canal gets infected in that way I do not know; I do not take stock in infection through the pericementum. I cannot say I have seen a tooth affected in that way, with all due respect to Dr. Rhein.

DR. HANNING.—I would not like to go on record as advocating the use of this Soderburg mixture, simply on account of its antiseptic qualities. The manufacturers of it said it would mummify the pulp. I get my broaches up as far as I can, and then put in a good, tight filling; I do not know whether my success is due to that or not. The very first time I used it I made a failure. The tooth was already affected. A druggist who was in my chair said, "suppose you try it on my tooth." I used some formaldehyde, and the tooth was filled up; that evening he went to one of his friends in his neighborhood and had the tooth extracted. It began to swell.

DR. DAILEY.—There seems to be a divergence of opinion. I heard a statement that eucalyptus should be used. If the gentleman will try eucalyptol, the absolute drug, and also bergamot absolute, and the cinnamon, he will do away with the irritating quality in the commercial oil. The use of essential oil and its antiseptic value is greater than anything I know of.

DR. PERRY.—I think this paper is a model for conciseness and correctness. It hits the nail on the head. It is not a big head either, and you must strike it squarely.

Mr. President, I wonder how long ago it is that you mentioned, in a paper called "Offerings," the little round bibulous paper points for drying root-canals?

THE PRESIDENT.—At least twenty-five years.

DR. PERRY.—Probably a year after that, I commenced the use of the gutta-percha points. They were suggested by your paper. I thought if the little paper would dry it well, the little points would fill it well, and with a little instrument, held in the lamp, these were rolled out; after a number of years I presented them before this society—red gutta-percha points. I never had the credit of it, but that does not matter. I used them for a number of years, but I found after awhile that, although they seemed to fit well and the root-canals seemed to be dry enough around them, they almost invariably came out with a bad odor. Feeling sure that there was germ action going on wherever there was a bad odor, I went back to filling with zinc oxychloride, because I had seen for so many years that this material used by all kinds of operators—good, bad and indifferent—seemed to do well. It was only a natural conclusion to believe that it was the antiseptic property in it that was that saving quality. There was danger in using it in cavities that were large at the apex, so there seemed nothing to do but to close the apex with little points of gutta-percha, and I used to sometimes even measure the size of the opening. I always measured the length with little barbs and I sometimes measured the opening with a little gutta-percha point warmed, and then perhaps filled it up with that same little point by pushing it gently.

Dr. Atkinson used to say, "Always fill the tooth solidly and firmly, and if it needed any treatment, help it to break out or let it break out and fill it from the outside." I think you will find a repetition of that statement for a number of years. I never agreed with that. I am a coward and timid; I don't want to have a patient suffer very badly; I would not like to be in that position myself. I have always filled them with a little undercurrent of fear that there might come a time when the filling would have to come out, and I must agree with Dr. Hart in his desire to use something which will come out easily if it be necessary to remove it. I must agree also with Dr. Rhein that the ideal filling has not yet been found, and I must agree with Dr. Evans in the main that infection often comes from the outside; but I believe in closing both ends.

Perhaps some of the younger men may think I am careless, but I do not care so much what I fill the canal with, so long as the apex is closed, because I expect to fill the other end accurately with my filling. I have seen the ends filled with cotton, without a particle of odor; and if there be no odor I have no fear. Dr.



Evans said he has no trouble with teeth that he has devitalized. We have no trouble with the teeth *we* devitalize; that is a horse of another color; but it is the diseased teeth that bother us—those that have been dead for some time. There comes the opportunity for search for a more perfect filling than we have.

I gave up the gutta-percha points because of their bad odor, due to their absorption of secretions. Take them out after they have been in the tooth for a number of years, hold them over a lamp or put them under your nostril and you will find a little odor from them every time. Gutta-percha swells, and it is natural that it absorbs. I fell back upon what the older members had used for a long time so empirically, but so successfully, the zinc oxychloride; it had the quality which Dr. Atkinson used to favor, but which I did not—that you could not take it out. It is a hard filling to get out, and a hard filling to get in, because the air is sure to get in, and you have to work very accurately to fill those little ends with zinc oxychloride; so after being dissatisfied quite a number of years in trying to fill with this material carried with cotton or silk into the apex, I took a hint from Dr. William Morrison, who used to fill the canals with gold wires, three or four of them—making sometimes the best filling and sometimes the very worst I have seen—reasoning that in those little hair-like canals a bit of silk or cotton twisted on a fine jeweller's broach would make a perfect filling if you could leave it up there. But, as you could not leave it, why not take a little fine gold wire, roughing it a little and twisting on it a few fibres of silk, and there you have a duplicate almost of the instrument with which you clean the root; then take the zinc oxychloride, mixed very thin, first having swabbed the canal up to the apex, in order to be sure you have it wet, with the very thin oxychloride; and then, with the fine gold point with the zinc oxychloride wrapped around it and carried up to the very end, you know you have it filled; and I think it is one of the best things ever used by the profession—I came to that conclusion because of the observation of those old empirical cases—leaving a little portion extending into the pulp-chamber, so you have enough to get hold of, if you have to remove it. I think to-day there is no way of filling those very minute cavities on the buccal sides of the upper molars and in the bifurcations of the lower molars, as well as with a little gold wire filed down and fitted as accurately as possible, put in as I have said.

This filling of Dr. Hart comes the nearest to that idea, and it may be better in that it can be more easily removed than even the gold wire with the oxychloride. What I should fear is that it is not quite stiff enough on the point sometimes to carry it where you wish. It might double up when the gold wire would not. Do not use soft gold; 14k. or 15k. tempered gold is better—one which is stiff and springy and which will carry it up to the end. Sometimes I fill an upper molar with those little gold wires on

the buccal side, and sometimes use the red gutta-percha points in the palatal root. That I have done sometimes in the last few years.

When it comes to the filling of the pulp-chamber, I do not know what to fill it with to-day. Dr. Jack has written me twice within a year on the subject of two split teeth, one of which was under my observation and another which he told me of, which he thinks were split by the expansion of oxychloride in the pulp-chamber. I never saw a case which I could be sure was caused by the expansion of the zinc oxychloride, except this one which came into my hands. It was a good, sound tooth, split right open. Within three or four weeks Dr. Jack has written me of another tooth split in the same way, and he said he was about to abandon the use of oxychloride in the pulp-canals.

There is one bad feature even with the gold wire: While you may be very sure of getting the fit accurately near the apex of the root, you are liable to have a space around the end of the root as it approaches the pulp-chamber; and if you have not enough material to flow back and fill that up, you have a nasty place which is hard to fill. I think that perhaps Dr. Hart's method is better, because you can fill it well before you put the tin wire there and you can take the tin out any time you wish, which I think is essential. I do not think an absolutely perfect filling has been found, and that is why you find so many people using different things. I have thought sometimes one of the best fillings we could have, if it could be made, would be such as Dr. Maynard used to make, which could not be removed, but which gave perfection of it. I have several times within the last twenty years opened teeth which he filled with gold and observed how perfect they were. I have seen the instruments with which he put in the gold—each little piece packed in solidly, giving assurance by the sense of feeling that they were perfectly filled. There were no cesspools there and no chance of weeping from the end of the root. That is where I think Dr. Evans is mistaken; I think fluid can weep into it. I think it can run down and moisture can get in there when the filling is absolutely tight. So it is best to fill both ends absolutely tight, and then in the middle it is not so important.

DR. EVANS.—I spoke in regard to the infection. I invariably close the apex of the canal most carefully with a little point of gutta-percha, measuring it carefully. I cork it, as I say, and fill one-third, sometimes one-half, with gutta-percha, and then fill the remainder with oxychloride. I have found nothing in recent years which surpasses or even equals Ash's rock cement. I carry it up generally with a few fibres of cotton.

DR. HART.—I stated what I liked to do after the canal was prepared, and I purposely did not enter into the treatment of that canal, because I think we are all of one mind that it must be in an aseptic condition, even if we are not all agreed just as to what we will put in. Concerning infection from the apical space, I have



seen a central incisor that had received a blow but which had no cavity. As a result the pulp died and an abscess followed; and how infection took place except through the circulation I cannot say. If Dr. Evans be correct it would become unnecessary to do any more than seal the pulpal end of root-canals with oxychloride, put in a good filling, and we would have no trouble.

As to any odor connected with this material, if you can find that that is a disagreeable thing to use, I will concede that it is; at present I do not. I have tried the mixture of aristol and the essential oils. It is not as thin, and it becomes somewhat sticky and gummy—there is the difference between working gum and a thin, vaselin-like mixture.

It would be inexcusable for any one of us to have any septic irritation after devitalizing and surgically removing a pulp, and I am not wasting your time or mine considering such cases. I am speaking of cases where a pulp has become purulent after exposure; treating that tooth as well as we can with chemical sterilizers or by heat, we get it in a condition where there is no pericemental irritation, and it is aseptic and ready to fill. I want to put a filling in there that I can remove. I am not arguing with any of you as to how we can treat roots after we destroy the pulps, or after using some local anesthetic removing those pulps, but as to how thoroughly we can sterilize the dental tubuli. Once we treat a root that has been the seat of peridental inflammation, we know that one inflammation predisposes to another, and it may end by suppuration. Until our knowledge of bacteriology is changed, I want a root-canal filling that if trouble arises I can remove.—*Cosmos*.

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## PRESSURE ANESTHESIA AND TREATMENT.

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BY J. R. CLAYTON, D.D.S., SHELBYVILLE, IND.

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Contrary to the usual practice in the removal of the pulp of a tooth after pressure anesthesia, the writer does all that he can to promote the hemorrhage instead of checking it with some hemostatic. The reasons for so doing seem very potent and will be here given: When the amputation of the vessels has been made we have separated a loop of the circulatory system as truly as if we had amputate a limb, not so extensive, to be sure, nor so important in degree, but just as important in kind. Now what are the prevailing conditions? The arteries are open, the blood pouring through at the same rate as before the operation. The nervous system has not yet been apprised of the disturbance and

nature has had no time to get a "grip" on the blood vessels; no communication yet between the severed arteries on the one side and the veins on the other.

Studying the phenomena of the circulation of the blood in the membrane of the foot of the frog at the moment that the infarct is so great that the blood-stream is motionless in the area affected, we find that under the constant pressure of the heart-stroke and arterial tension the arteries in the affected zone begin to lose their "tone," their calibre increases, they become tortuous; leucocytes and liquor sanguinis begin to pass through the stomata of the arteries and the first stages of swelling begin. Relieve this condition by bloodletting and the arteries soon recover their tone and size; absorption is set up and the tissues are restored to their normal condition.

Now for a moment let a survey be taken of the scene of operations. As before stated, a loop of the circulatory apparatus has been removed, so much arterial, so much of the capillaries, and so much of the venous; the blood-current still maintained. Now here is the gist of the writer's contention: By providing for the escape of the blood, all lateral pressure on the walls of the vessels is prevented; there is no extravasation of the leucocytes and blood-serum; the injury very soon arouses the powers of nature; the vasomotors lay hold of the vessels, they contract, a natural clot is formed, and the injury is forgotten.

Now for a moment take up the study of the case from the moment that the amputation has been made. The arteries are open; the blood is pouring out at a rate sometimes surprising; the only way of escape for the blood is out of the tooth, and so long as that is permitted there is no trouble. Now plug up the canal, and there is soon another state of affairs brought about. Whether the amputation has been made in the canal or exterior to it, the effect upon the apical tissues is the same. If the open mouths of the arteries are stopped there is soon established that condition in which they become tortuous and increased in size, the leucocytes and blood-serum make their way through the stomata, causing pressure upon the nerves, and soreness of the root ensues. Or, if the amputation of the arteries has been made exterior to the foramen, the effect is still the same, and soreness of the peridental membrane the result.

In conclusion: Promote the bleeding until nature gets her "grip;" the hemorrhage will then cease, because there is no disposition to it; wash thoroughly with peroxid of hydrogen until there is no reaction whatever; dry the canal and fill it at the same sitting. Any slight soreness of the root membrane may be treated by painting the gum with tincture of iodine. The cavity may be filled at this or any other time that may be convenient. *Never allow the saliva to get into the canal.*—*Dental Brief.*



## DENTAL EDUCATION THE EMBODIMENT OF THE NEW EDUCATIONAL IDEAL.

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BY J. FREMONT BURKET, D.D.S., KINGMAN, KAN.

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The primary object of general education is character. The profession or life work is secondary. This relation of character and life work must obtain in the preliminary education of a dentist if dentistry is to take its place as a noble, learned profession. The education of a boy till he is eighteen or twenty years of age should advance along no other lines. The new education, rooted in its basic science of psychology, comprehends the rational unfolding of the child's threefold nature. By *new* education is meant the present educational system as opposed to the Oriental and classical systems that preceded it. The ideal of Oriental education was the training of the child for the institutions, social customs and established usages about him. The ideal of classical education, founded upon Greek and Roman civilization, was the sacrifice of the child for the good of the state. Free and independent inquiry and development could have no place in either of these systems. The new educational ideal, proclaimed by Pestalozzi, demonstrated by Froebke, and carried by their disciples into all the countries of Western Europe and into America, is the complete unfolding of all the individual powers, mental, spiritual and physical, and is realized in the training of the head, the heart and the hand. Unfortunately in nearly all countries the new educational systems have laid undue stress upon the training of the head, leaving out almost entirely the heart, and more especially the hand. General educators are making strenuous efforts to overcome this defect by emphasizing the development of character and by incorporating manual training in the schools.

Early training directed towards some especial profession or calling is in accord with Oriental or classical rather than modern educational ideals, since it naturally tends to develop one part of a youth's unfolding nature to the detriment of the others, and in the end is dwarfing to the individual. Technical training later on does not have this effect. Hence it must follow that dental education, *as such*, should have no place in the life of a boy before he reaches at least eighteen years of age. Previous to that time he is being trained for *life*, and rational, symmetrical development of his threefold nature should be the aim.

These considerations would seem to indicate that about all dentists or dental commissions can do for the preliminary dental education, beyond fixing the standard for entrance to the dental college, is to look into the educational systems of their respective

countries and see that the new educational ideals finds full expression in the schools.

In the United States there is a national system which expresses itself in the kindergarten, the elementary schools, high school, and university. Not all the states have their schools brought up to this standard as yet, but it is the model after which all are forming. It was only at the last session of its Legislature that Kansas passed a bill providing for manual training in all the schools of the state, and it will be but a short time till it is embodied in the schools of all the states.

The function of the kindergarten is the "setting of the instruments," as Sir Michael Foster styles it in his Cambridge address, the starting of "habits of accuracy, intentness and alertness." In building, constructing and geometric drawing the hand is trained to obey the will to some definite end. In color work and clay moulding the child not only receives manual training of a high order, but learns to *see*, and obtains power to discriminate in color and type forms and is thus led to a right feeling for what is beautiful and eternal in art. Through plays and games he passes from nature—from *things*—to self-activity, from the material to the spiritual, and in the varied relations with other children there is awakened that ethical feeling that must govern social conduct. Thus there is laid in early life the foundation for the development of those ultimate powers and principles so essential in the dentist.

The kindergarten is followed by what is termed the elementary schools, a succession of schools, usually eight, sometimes nine, systematically graded, in which the boy finishes his primary education and is fitted for the high school.

Manual training in proper gradations obtains all through the elementary schools and is continued on through the high school.

Nature studies leading to elementary science are begun in the first years of school. In the high school he has the sciences, in a somewhat elementary form, of botany, physiology, physics and astronomy or zoology; mathematics through plane and solid geometry; general history, and English and American literature. In the languages he has, besides a critical study of English, two years of German and four years of Latin.

There are usually two courses, which are elective, in the high school—the scientific, which includes no foreign language and may be finished in three years, and the classical, which includes German and Latin and requires four years for completion.

An eminent American dentist recently remarked that the study of physics in the high school was almost useless because not carried on by laboratory methods. I must as emphatically affirm the contrary, so far as the future dental student is concerned. When a boy has had the study of physics in preliminary education and has become familiar with the science in this elementary



form, he is prepared to enter at once into the spirit of the study in a dental school with its laboratory opportunities. Besides, a boy with a scientific turn of mind will perform many experiments with the crude materials at hand in an improvised high school laboratory. It may be noted that four years are given to the study of Latin, a dead language, while but two years are given to German, a living language. Owing, perhaps, to the practicality of this age, there seems to be a sentiment growing against the study of Latin. This feeling has been especially emphasized by the recent decision of the New University, of London, that Latin is no longer compulsory on professional students. However, this decision is not to be wondered at so much when we consider the chaotic state of education in England as revealed in the debates on the recent Educational Bill in Parliament. With no national system of education, it would seem difficult for the masses of the children to successfully study Latin or any other foreign language. In the United States the schools are modelled after one system, and the pupil's progress is carefully graded from the kindergarten to the high school, so that if a boy passes from one town to another, or from one state to another, he has but to hand in his grades and he is fitted into his proper place almost without a jar in his progress. But whether the sentiment be *for* or *against* Latin, the fact remains, and will forever remain, that Latin has entered largely into the formation of the English language, and a study of it is necessary to an independent use of English. More than this, it is the foundation of the Romance languages, the Spanish, French, Italian and Portuguese, and if a boy has had the Latin in his public school course he can readily acquire any one of these languages in a short time even when in active professional practice. In this day of international affairs, when men are likely to pass from one nation to another, and a reading and writing knowledge of the language at least is eminently helpful, the value of Latin in early life must be apparent. A boy usually finishes the high school course at about eighteen years of age.

We will compare this course of instruction with "Preliminary education necessary for the student of dentistry," as embodied in the report of Dr. Maurice Roy, Secretary-General of the International Educational Commission, and submitted to the International Dental Commission at Stockholm, and which is as follows: "(1) A literary education, with a knowledge of two living languages. (2) An elementary knowledge of science. (3) Manual instruction."

We will consider the last requirement first, as it stands at the beginning of the whole structure. We have shown that manual training obtains throughout the whole course, predominating in the kindergarten, but diminishing in the higher grades as the development of the mind calls for more mental work.

This order is in accord with the proposition stated by Sir Michael Foster, that "The mind ages slowly and can be educated at even a late period of life, but the body grows quickly old and it is necessary to train it while young. In general education it is based on the psychological fact that activity is the fundamental law of child development. It is, however, just the opposite of the recommendation of Dr. Roy's report, "that studies relating to general culture should not be prolonged beyond the age of sixteen," so that from there on the boy may have "gradual manual instruction on the one hand and elementary scientific instruction on the other." As has been observed, while he has training leading to the normal development of his threefold nature all through the public school, manual training predominates in early life, when it will produce the greatest amount of digital skill and manual dexterity. If, as leading educators declare, "manual skill resides not in the hand, but in the brain and mind, and is, in the strictest sense of the word, a part of intellectual training," then its development should begin simultaneously with that of the mind.

The second requirement is fully met by the nature studies followed by the general sciences named in the course of instruction.

The first requirement, "a literary education with two living languages," is more than fulfilled by the high school course. Hence, a classical high school education in the United States more than measures up to the standard for the minimum preliminary dental education as embodied in Dr. Roy's report. Emphasis, however, should be placed upon the word *minimum*. Why should young men be urged into the technical schools at a very early age if they will spend the time in studies of general culture. If a boy has had the intelligent early training that produces mental development, ethical character, and manual dexterity, has he not now reached the point where he can obtain most good from culture studies? Is not this the time to lay broad and deep the foundation upon which a purely technical education should be built? Upon the fruitfulness of these few years must depend much of his future usefulness to society and to his profession. These, too, are the years for the obtainment of the capacity to continue to develop through an intelligent appreciation of art as it is expressed in music, literature, architecture and the kindred arts, not mentioning the treasures held by the literatures which the studies of the different languages have unlocked to him, and their power, if read at this time, to strengthen his moral purpose, enrich his life, and uplift his whole manhood. If a profession advances according to the all-around scholarly students who enter its ranks, it is men of such character and attainments who will carry dentistry to its destined high place among the learned professions. Then why not encourage university education for the student, as



in dentistry the university man will find full scope for the exercise of his trained powers.

The trained hand is beginning to receive true recognition in the making of complete manhood. It was the want of this recognition that caused dentistry's struggle for professional standing. It was contempt for manual training that led the American universities to refuse to establish dental departments in their schools, till dentistry, with what now seems to have been almost superhuman faith in her destiny, established schools of her own in which she enlarged the domain of her art as its different branches became rooted in their underlying sciences, while by patient training in manual dexterity she raised the art of dentistry in its final expression of restoration to the plane of the fine arts. Unaided and alone she proved her high calling, till to-day the new education finds in dental education the embodiment of its highest ideal: the training of the head, the heart and the hand.

#### RESUME.

In general education character is the primary object, the profession or life work is secondary. This order should obtain in the preliminary education of the dental student.

The new educational ideal comprehends the development of man's threefold nature—the head, the heart and the hand. By new education is meant the present educational system as opposed to the Oriental and classical systems that preceded it.

The United States has a national educational system which is expressed in the kindergarten, the elementary schools, the high school and the university. Manual instruction is a part of the whole school force till the close of the high school. A boy usually finishes the high school at about eighteen years of age. According to this educational ideal, dental education *as such* has no place in a boy's training till he finishes the high school course.

A comparison of this course of instruction, till the close of the high school, with the preliminary education necessary for the student of dentistry, as embodied in Dr. Maurice Roy's report to the International Dental Commission at Stockholm, shows a classical high school education in the United States to more than meet the requirements. A university education should be encouraged in preliminary dental education, as the university man will find in dentistry full scope for the exercise of his trained powers.

The refusal to recognize the trained hand in man's complete development caused dentistry's struggle for professional recognition. Contempt for manual training caused the American universities to refuse to establish dental departments in their schools till dentistry founded schools of her own and proved her high calling, and now the new education finds in dental education the embodiment of its highest ideal—the training of the head, the heart and the hand.—*Dental Brief*.

## PUNISHMENTS FOR EMPLOYING UNREGISTERED ASSISTANTS.

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The dental law of Great Britain works out somewhat different from that of Canada, as the report of the following cases show. In Great Britain a dentist who employs an unregistered assistant is in danger of having his own name removed from the register. It would seem that the assistant is "scot-free," so long as he has not pretended to be a registered dentist. In Ontario recourse is taken against the assistant and the dentist is allowed to go free. When the Board of Ontario decides to pass a by-law to discipline its members for unprofessional conduct, as it has a perfect right to do, it should make it an offence for a dentist to employ unregistered assistants. When the unqualified and the employer of the unqualified can both be punished by the law of the Province, and the other by the Board, there should be small chance for those who do the unlawful.

### THE CASE OF F. DE ROOS OWEN.

Consideration was given to the charges proved against Frederick de Roos Owen in regard to whom the Dental Committee had found the following facts:

The complaint against Frederick de Roos Owen having been referred to the Dental Committee to ascertain the facts the Dental Committee beg to report as follows: On February 24th, 1903, the inquiry was held. Mr. Frederick de Roos Owen appeared personally and was also represented by Mr. George Wallace, his counsel. The committee find that the following facts were established by the evidence or were admitted: (a) Frederick de Roos Owen was registered in the Dentists' Register as in practice before July 22nd, 1878, and his address in the Dentists' Register is Oxford Street, Swansea; (b) being a registered dentist, Mr. F. de Roos Owen has permitted an unqualified person named A. G. Holt to attend patients and perform operations on them, and to practise dentistry on his behalf in his name, at 4 Windsor Place, Cardiff, and the practice at 4 Windsor Place, Cardiff, was carried on in this manner for a period extending from March to October, 1902, both months inclusive; (c) since the commencement of November, 1902, the said A. G. Holt has been employed by Mr. F. de Roos Owen and allowed by him to act in the conduct of the said practice in a purely mechanical capacity only, and Mr. Wallace, as counsel for Mr. F. de Roos Owen, gave to the committee an unqualified undertaking on behalf of Mr. F. de Roos Owen that in future he would employ as his assistants duly qualified persons only, which undertaking the committee report to the Council.



Mr. Owen appeared along with his solicitor, Mr. Spencer Chapman.

Mr. R. W. Turner attended on behalf of the British Dental Association, under the instructions of Messrs. Bowman and Curtis Hayward.

The foregoing report having been read by the registrar, Mr. Owen, in answer to the President, said that he still employed Mr. Holt, but only as a mechanical assistant. He adhered to the undertaking which he had given to employ for practice qualified persons only, and he had made arrangements to carry that into effect.

Mr. Turner informed the Council that he had really nothing to say now about this case, as he was satisfied that the cause of complaint had been removed.

The President: Then, Mr. Owen, I am instructed by the Council to say, that having further considered the charge brought against you and the reports of the Dental Committee thereon, the Council does not judge you guilty of infamous or disgraceful conduct in a professional respect.

#### THE CASE OF DAVID ANTHONY.

The next business taken up was consideration of the charge proved against David Anthony, in regard to whom the Dental Committee had found the following facts:

The complaint against David Anthony having been referred to the Dental Committee to ascertain the facts, the Dental Committee beg to report as follows: On February 24th, 1903, the inquiry was held. Mr. David Anthony appeared personally, and was also represented by Mr. Kirby, a solicitor. The committee find that the following facts were established by the evidence: (a) David Anthony was registered in the Dentists' Register as in practice before July 22nd, 1878, and his address registered in the Dentists' Register is 39 St. Mary's Street, Cardiff; (b) being a registered dentist, Mr. Anthony has habitually permitted an unqualified person named Jonathan Edwin Billups Lee to attend patients and perform operations upon them, and to practise dentistry on Mr. Anthony's behalf in Mr. Anthony's name at 100 Queen Street, Cardiff; this course of practice by Mr. Anthony continued regularly during the period between the months of March and December, 1902, inclusive, in which latter month the connection between the said Jonathan Edwin Billups Lee and the said David Anthony ceased. (c) On January 9th, 1903, a joint stock company named Anthony, Dentists (Cardiff), Limited, was registered, for the object (amongst others) of purchasing and carrying on the business of a dentist carried on by David Anthony at No. 100 Queen Street, Cardiff, and of employing thoroughly practical persons to act on the company's behalf as dentists. By the company's memorandum of association it

appeared that Mr. Anthony subscribed the memorandum for 50 shares, the other six signatories being subscribers for one share each. (d) Mr. Anthony has still in his employment as assistant an unqualified person. (e) Mr. Anthony stated that he did not receive the circular of the General Medical Council, which was issued in 1900 relating to employment of unqualified assistants. His name was taken off the register in the latter part of 1900, under section 12, but he was restored in 1901. A previous issue of the circular took place in 1892.

On the case being called, no appearance was made by or for Mr. Anthony.

Mr. R. W. Turner was present for the British Dental Association, and after the foregoing report had been read, stated to the Council that the Dental Association regarded Mr. Anthony's case as a very important one. It would be found on inquiry, if made, that this man had not for many years practised dentistry, although his name was on the register. He had set up the business mentioned in the report only two years ago, and had carried it on by an unqualified assistant. When before the committee he had been asked to give an undertaking not to employ unqualified people and he would not do so.

After a short deliberation *in camera*,

The President announced that the Council had come to the resolution that on the facts found in the report of the Dental Committee, Mr. Anthony had been guilty of infamous and disgraceful conduct in a professional respect, and the Registrar had been instructed to erase his name from the Dentists' Register.—*Dental Record*.

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## DAMAGES FOR EXTRACTING SOUND TEETH.

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At the Gateshead County Court, before His Honor Judge Greenwell, an action was heard between Eleanor Nicholson, 29 Melbourne Street, Gateshead, and William Gerrard, dental mechanic, 50 High Street, Gateshead. Plaintiff claimed £11 10s. for damages for the defendant's negligence in removing six sound teeth of the plaintiff's without instructions.

Mr. J. A. Dixon appeared for the plaintiff, and Mr. Wynn Parry for the defendant.

Mrs. Nicholson, the plaintiff, said that on Monday, March 16th, she went with a Mrs. Smith to the defendant's for the purpose of having some teeth pulled out. She pointed out the teeth she wanted pulled out. She wanted one eye tooth, one at the side, and two at the front taken out. She was given gas, and when she came to consciousness she found



that he had taken the good teeth out instead of the bad ones. He pulled out eight teeth in all, six of them good ones. He told her to come back on Wednesday, and she said she would see her husband. She paid Mr. Gerrard 5s. Her husband and she went to the Dental Hospital, where she had three other teeth pulled out. Two were those that she had told Mr. Gerrard to pull out. On the Monday he came and saw her, and said that he was very sorry that there had been a misunderstanding. He wanted her to look over what he had done, and she told him he must see her husband. Mr. White put in twelve teeth for her, and they cost her 5s. a tooth.

Mrs. Smith, 35 Melbourne Street, Gateshead, said that plaintiff did not point out in her presence what teeth she wanted out. All that Mrs. Nicholson said was that she wanted the bad teeth taken out. They had no conversation on the way home, as their mouths were too sore to open. Mrs. Nicholson came to her house, and had a cup of tea with her. Plaintiff only made one remark, and that was when she said, "I will say he was nice, very nice." The first complaint she heard was on the Friday.

Cross-examined by Mr. Parry: It was not true that she said she only wanted the bad teeth out.

Robert Nicholson, husband of the plaintiff, said that when he spoke to Gerrard about it he said that he only worked according to instructions.

William Gerrard, the defendant, was called, and stated that he was a dental mechanic. He was not registered, but had had over twenty years' experience. He did not take eight teeth out. He took three teeth out on the first administration of gas, and two more on the second administration. He did not take a good tooth out of the woman. He did not touch the bottom teeth at all. According to instructions she was to have them all out, but he was not going to take them all out for her, as some of them were good.

Cross-examined by Mr. Dixon: He had been employed at Macdonald's, 118 New Oxford Street, London. Not a single member of the company was qualified, so far as he was aware. It was not necessary to be qualified in the ordinary sense.

His Honor: How about the administration of gas?

Defendant: I can even administer chloroform, if I care to.

His Honor: You would be in a very queer street if anything happened.

In giving judgment His Honor said that the case was purely one of fact, but the elucidation of facts was certainly not assisted by the circumstances that Mr. Parry thought fit to have conversation with Mrs. Smith, one of the plaintiff's witnesses, that morning, before the case was called.

Mr. Parry: I did not know she was a witness.

Continuing, the judge said that it made him more than doubtful whether Mrs. Smith's evidence was worth anything. The

case really rested on whether he was justified in believing the plaintiff's version of what passed. He did feel so justified that he thought that she actually pointed out to the defendant what teeth she wanted pulled out. He thought that he did not follow his instructions, and that he did pull sound teeth out when he ought to have pulled only bad teeth out, and, therefore, judgment would be for the amount claimed and for £10, which he considered a remarkably moderate claim under the circumstances. He could only recommend anybody who had heard that case, in the future not to go to persons who advertised themselves as dentists when they wanted anything done to their teeth.—*Dental Record*.

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## THE TEETH OF OUR ARMY.

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BY ARTHUR C. LISTER, CAPETOWN, S.A.

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In this short article I will endeavor to give my experience and the conclusions I draw after eighteen months' active service, both in the field and at the Stationary Hospital:

In the first place, from observations made by me on the *SS. Gascon* (the boat on which I sailed in March, 1901), I came to the conclusion that not 60 per cent. of the soldiers on board were in a fit state for "active service," judging by the standard of the army regulations then in vogue.

After serving a few months in the line, our squadron of Yeomanry joined Colonel Wyndham to make up his column. I was then asked to take up the dental duties for the column. These duties I performed for three months, which gave me ample opportunity to judge the effect "carious teeth" had in preventing ordinary work. Being winter, the sudden variations in the temperature were bound to wake up a few diseased pulps, but on the average the extractions I performed were only about two per day, which would work out something like  $\frac{1}{2}$  per cent. At the same time I must admit I was greatly surprised that aching teeth were not more prevalent, owing to the large amount of diseased teeth which came under my notice. Occasionally soldiers would appeal to me to perform numerous extractions with a view to their being made unfit for duty, and thereby being invalided home in due course.

I might here point out the conclusions I drew of the army method of invaliding through defective teeth? So long as a man had a mouth full of rotten roots, no matter in what septic condition his mouth was, he was considered fit for duty. But so soon



as the necessary extractions were performed, leaving edentulous spaces, he was considered unfit, and so invalided.

From Wyndham's column I was transferred to "21 General Hospital," Deelfontein, to undertake the dental work. Unfortunately I had no opportunity whatever of practising conservative dentistry, for the simple reason that, after repeated applications for necessary appliances, I received a nice set of excavators and plastic filling instruments, but no filling material!

The result of the above policy was the performance of thousands of extractions, necessary and unnecessary, from the dental standpoint.

Although I reluctantly admit the huge amount of extractions, I am pleased to be able to record that fully 75 per cent. of them came in the treatment of dyspepsia and other alimentary troubles. In scores of such cases I had to take out from twelve to twenty septic roots.

Needless to say many of the patients who came to me for treatment were malingerers who came for the sole purpose of having a mouth cleared of septic roots in order to get invalided home. And yet if we take a broad view of their cases, we can hardly classify them as malingerers, for with a denture composed of roots in a septic condition the only sound teeth remaining being, say eight to twelve, and of this small number probably 50 per cent. incisors, we ought not to expect a man to masticate and assimilate such food as came his way.

And now a word as to the probable cause of all these defective teeth. I am afraid I shall have to differ from the majority of writers whose literature I have read on the subject, *i.e.*, that the campaign was the cause. Had a dentist been given the opportunity of examining the dentures of all "regular soldiers" previous to their sailing for South Africa, and had he given his decision according to army regulations, I think he would have rejected at least 20 per cent. So it is quite a simple matter for the profession to understand why one found so many mouths in such a septic condition. Teeth which are already disintegrated with caries cannot be expected to withstand the class of food one has to masticate on active service; it is only natural that they will break away piecemeal, leaving the roots as mementos.

The jams we ate may have been the cause of many cases of caries (through the process of fermentation), and may have hastened incipient caries, but they were not the chief factor. As a matter of fact, judging from my own personal experience, and from observations I made on mouths I saw previous to and at the close of the campaign, I think the food on which we had to exist must take a secondary place.

More than that, I conclude, given a perfect denture, it is much more likely to remain so when restricted to field rations than it would by living in the European style, especially if one makes use

of the tooth brush. On active service one has very little opportunity of using the latter, and it is regarded rather as a luxury. I do not think there are more than 50 per cent. of soldiers who have any regard whatever for dental hygiene. They remind one of the ignorant class of patients who give no thought for the teeth until an aching pulp reminds them something is wrong. As their only resource is extraction, occasionally they will battle with pain for days in order to postpone the gruesome ordeal. Knowing only too well the reputation that the army doctor has for dental work, they consider themselves very lucky if the offender is extracted successfully.

To sum up, my firm convictions are, that of the many thousands of teeth which were extracted during the South African campaign, at the very least 75 per cent. (excluding septic roots) were amenable to conservative treatment.—*Dental Record*.

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#### DR. PECK TO THE ILLINOIS DENTAL SOCIETY.

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The reputation of our profession is not menaced alone by those who stand without. No foes are so to be dreaded as those of our own household. We can defend our castle against assaults from open enemies, but how shall we successfully resist the disloyalty of those who are within our walls? There is no perfect human organization. Even the Christian Church is made the hiding-place for some whose aims are selfish and whose lives are unworthy. We cannot expect that our society will be an exception to an otherwise universal rule, but we need to place before ourselves high standards and strive to measure up to them. It is said of the Athenians that they did nothing else than either "to hear or to tell some new thing." There are men to-day in our own profession who seem to do nothing else than to hear or to tell something derogatory to the character of their fellow practitioners. What they do not say by bold declaration they insinuate by shrugs and winks and innuendos. No jealousies are more bitter and implacable than those found among professional men. You may say that jealousy is the sure sign of a small soul, and so it is; but even the small insect may cause great irritation and unhappiness. When you see a man spending his time in vicious gossip, trying to find out something to the discredit of his fellow, manufacturing when he cannot discover that which he seeks, gloating over human imperfection, and rejoicing in exposing it to the world, you have found a man who, in the words of Ben Jonson, "Cuts men's throats with whisperings." What can be done to silence slanderous tongues and suppress unprincipled gossip-



mongers? Refuse to listen. Give them to understand that you consider the tale-bearer worse by far than the one about whom the tale is told. Deny to them the delight of using you as a sewer into which they pour their filth. The gossip understands that his occupation is gone when all ears are closed to his tales. So shall we help to abolish an evil that not only brings unhappiness to many worthy men, but seriously affects the fair fame of the calling which we profess to love.

Let us now come a little closer to the individual, and ask ourselves what our ideal of manhood shall be. This each must answer for himself, and on the answer hang not only the issues of the individual life, but the welfare of society. There is not a question which concerns professional life, the future of this organization, or the perpetuation of republican institutions, that does not hinge upon the individual and his conception of life. As we emphasize the importance of right character, I would recall to your minds the words of Daniel Webster: "If we work in marble, it will perish; if we work in brass, time will efface it; if we erect temples, they will crumble into dust; but if we work on the immortal mind, if we imbue it with correct principles, the fear of God and the love of our fellowmen, we engrave on those tablets something which will brighten with all eternity." We are each engaged in a work that is more important than any purely professional activity; a work in which success or failure takes on infinite importance; the work of building character.

It is easy to admire the admirable but difficult to embody it. A sturdy, pure, honest and gracious life never comes save through effort. We sometimes imagine that the deed is done when we see the noble and good and wish that they might be ours. Somewhere I have read this fugitive verse:

"Scatter thy wishes, and their arrows fall,  
Broken and spent, before Fate's frowning wall.  
Forge from their fragments one sharp spear of will;  
The barriers frown, but thou shalt pierce them still."

At the centre of life *will* sits upon the throne. As we will so we are. Castles-in-Spain, day-dreams may bring us momentary joy, but they crumble into dust if they are not buttressed by the imperial strength of dauntless purpose. It is well to have high ambitions as members of an honorable profession. Far be it from me to speak any word which should discourage any member of this Society in the pursuit of the highest excellence in the special line of work which he has chosen, but the fruit of success will turn to ashes in our mouths if we lose manhood in the struggle for professional fame.

In an open letter, written by Marshall Field to a friend, he expresses this sentiment: "There is no money success that can compensate for the loss of character." Let not the glitter of tinsel

blind us to that which has intrinsic value. We may look out with wondering and possibly envious eyes upon the meteoric and brilliant display of some whose magical rise and progress command the attention of the community. It may be that their success stirs our hearts with a strong impulse to duplicate their experience; to try our hand at dazzling our fellows by feats of financial legerdemain. If prosperity come to us in the honest pursuit of our life-work, well and good. Money is not to be despised, for it may be used to relieve distress and to increase the world's happiness. But there is a wealth which is within the reach of every man, a wealth that cannot be measured in terms of currency—that of an unselfish, honest, noble character. To give such a life to the world in which we live, to leave such an influence after we have passed away, is to realize the truest success and make the largest possible contribution to the well-being of our fellowmen. May these high ideals inspire and lead us. May we be so loyal to all that is best in manhood and professionalism that Shakespeare's immortal words will be true of every one in this presence:

“His words are bonds, his oaths are oracles;  
His love sincere, his thoughts immaculate;  
His heart as far from fraud as Heaven from earth.”

—*Dental Digest.*

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## THE IMPORTANCE OF ATTENTION TO THE MOUTH AND TEETH BEFORE AND AFTER OPERATIONS UPON THE PELVIC VISCERA.

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MacNaughton-Jones, in the *Medical Press*, of March 25th, 1903, writes of the importance of oral cleanliness prior to pelvic operations. As he well says, anything that is likely to complicate recovery from a pelvic or abdominal operation is worthy of attention. This may appear a truism, yet it is unfortunately the fact that occasionally we have to deplore a fatal result which arises, not from some apprehended cause such as unavoidable surgical calamity or complication, but from a trivial oversight or unlooked-for yet avoidable accident or complication which greater forethought or watchfulness might have prevented. It is to the occurrence of such a sequel to a pelvic operation that the author briefly draws attention.

It is well known that even in health a great variety of micro-organisms are found in the buccal cavity, such as the leptothrix sarcinæ spirilla, the pneumococcus of Friedlander, the bacterium gingivæ pyogenes, the bacterium termo, the pseudo-diphtheritic



bacillus, and less frequently the staphylococcus albus and aureus, the streptococcus pyogenes, and the bacillus coli communis. This is only part of a list of micro-organisms which, according to Miller, frequently number a hundred and forty million in an unclean mouth. Fortunately, the old saying is true of all these deleterious organisms—"these fleas have other fleas"—and to this microbial cannibalism we owe the immunity from septic influences under ordinary conditions rather than to the weak bactericidal effects of the saliva. But we must further remember that these microbes may secrete ferments and produce alkaloids, the same microbe possibly having the property of producing both, and toxic ptomaines be also formed from these pathogenic organisms. How far the swallowing of such infective germs, if they be not destroyed by the gastric secretion and reach the intestines, infecting the intestinal tract, indirectly favor septic changes in wounded tissues, especially in those in close proximity to the bowel, we cannot say. That they may do so, and occasionally do, appears to be certain. That they must directly cause various gastric troubles is equally true. When the general health is affected and the buccal cavity is itself involved by an acute or chronic constitutional disorder, the virulence of such organisms is increased. By disordered states of the stomach, the naso-pharyngeal tract, the teeth, tongue, and buccal mucous membrane, this increase in virulence is likely to be produced. The mouth then becomes a generating microbial incubator, in which fermentative, putrefactive and infective action are rife. The bacterium termo, which we have noticed as being present, is known to be one of the most active agents in bringing about putrefactive changes. The affection pyorrhea alveolaris, in which a pus pocket forms between the alveolus and the root of the tooth, and which is attended by softening with purulent exudation from beneath the gum, is commonly known to all dental surgeons.

In a most valuable series of articles which appeared in the *Clinical Journal* (March and April, 1899), Mr. Fitzgerald discussed the etiology, pathology and treatment of this affection. Among the predisposing causes, besides syphilis, tubercle and scurvy, he mentions the exhaustion of acute infectious disease, or any other source of malnutrition. The gingivitis is accompanied by streptococcus invasion and putrefactive organisms, with decayed food remnants, which with the associated pus are swallowed, and act locally on the stomach wall, originate gastric fermentation, and initiate processes which are the result of the absorbed toxins generated in the mouth.

A woman under the author's care for recto-vaginal fistula, which was cured by operation, and on whom he subsequently performed amputation of the cervix, consulted him on different occasions for most severe ulcerations of the buccal mucous membrane, and the inside of the lips and tongue. Pseudo-diphthe-

ritic patches, extending deeply into the tissue, and most difficult to heal, recurred from time to time, notwithstanding that the teeth had been attended to and all carious stumps removed. He had ordered two or three bacteriological examinations made of scrapings from the membranous exudations, and each time the staphylococcus and streptococcus were present with other organisms. Recently, though she has been for a few years free from an invasion, she has had another and milder attack on the inside of the lip. At the time of the first attack the sockets of all the incisor teeth were infected; these were attended to by her dentist, and peroxide of hydrogen was injected.

The lymphatics of the salivary glands, and those of the mouth communicating with the superficial and deep cervical glands, may carry infective organisms to these latter. Should there, at the time, be any slight abrasion of the buccal mucous membrane, the infection may thus directly reach the circulation.—*Therapeutic Gazette*.

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## CONSERVATIVE TREATMENT OF THE ANTRUM OF HIGHMORE.

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BY PRESTON M. HICKEY, M.D., DETROIT, MICHIGAN.

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It would be better perhaps not to dignify these remarks by the name of paper, but rather entitle it a protest against too radical measures early in the course of acute inflammations of the maxillary sinus. The thought which prompted this protest was suggested by the course of two cases, the history of which I will briefly relate:

CASE I.—Mr. A., aged twenty-seven, whose general health had always been excellent, and who had never suffered any special inconvenience with the upper respiratory tract, contracted a severe cold. Within a few days, during which the symptoms of coryza were prominent, he was taken with a chill, followed by sharp rise of temperature, accompanied with pain in the left maxillary sinus. His attending physician, recognizing the character of the infection, called in a doctor of dental surgery, who at once advised immediate operation, extraction of a tooth, drilling into the antrum, and putting in a drainage-tube. As these measures seemed somewhat radical, the patient decided to have further consultation, and I was asked to see the case. The temperature when I saw the patient on the fourth day after the chill was 101 deg. The pain was well localized over the left maxillary sinus, and inspection of the anterior nares showed the membrane of each



naris quite swollen. The patient complained of extra discharge at times from the left nostrils. Transillumination with the electric lamp showed distinct opacity of the left antrum. As my experience had taught me that where the route of the infection was evidently from the nares these cases tended usually to spontaneous cure, I advised the use of palliative measures. Accordingly 1 per cent. solution of cocaine was advised as a spray to be used every two hours to secure contraction of the swollen mucosa, followed by a spray of the freshly made solution of suprarenal extract; also frequent washing of the nasal chambers with a mild alkaline wash. The patient was directed to keep the recumbent position, and to lie as much as possible on the right side, so as to afford proper drainage. Two or three days of this line of treatment relieved the pain and soreness, and in about ten days transillumination examination failed to show any fluid in either sinus. Frequent examinations since then, covering a period of three years have failed to show any trouble with the sinus.

CASE 2.—Dr. W., aged thirty-five, dentist, has complained of difficulty in breathing through the nose for many years. He had passed through the hands of several nasal specialists, and had had the nasal mucosa in each nostril cauterized many times. When he came to my hands I found the nasal passages on each side very narrow, and the membrane over the inferior turbinals pretty well scarred. I removed the hypertrophied posterior tips of the inferior turbinals with the snare, which procedure gave the patient great relief. One year after this operation he contracted a severe cold with prominent nasal symptoms, and in the course of this coryza the left maxillary sinus became infected, and with the usual symptoms—rise of temperature, chill, pain, etc. As the patient had seen some of the operative work of his brother dentist he broached the subject of opening the antrum, which I at once disapproved of. He was given a solution of adrenalin hydrochloride 1 to 4,000, and directed to use it as a nasal spray every couple of hours. This solution was sufficient without the preliminary use of cocaine to keep the nasal passage free and the mucous membrane of the maxillary outlet of the antrum sufficiently contracted to admit of proper drainage. As the symptoms were not at all distressing he pursued his usual avocation. Resolution in this case was somewhat delayed, as it was fully three weeks before the transillumination tests showed that the antrum was free of discharge. Delay in this result, I think, was due to the fact that drainage during the day was interfered with by the erect position of the patient.

Finally, I would summarize my experience in the following conclusions: First, acute inflammation of the antrum of Highmore, when due to nasal infection, should be treated conservatively for the first two weeks; secondly, the constricting effect of adrenalin hydrochloride affords us a valuable non-toxic agent in

reducing the swelling about the hiatus semilunaris; thirdly, in cases of severe symptoms the proper position to secure most favorable drainage from the natural outlet should be insisted upon.—*Therapeutic Gazette.*

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## THE RECIPROCITY AGREEMENT BETWEEN PENNSYLVANIA AND NEW YORK.

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At the recent meeting of the Pennsylvania State Dental Society Dr. Howard E. Roberts, President of the State Board of Dental Examiners, announced the formal conclusion of a conditioned reciprocity agreement between that body and the Board of Dental Examiners of the State of New York.

The following is a synopsis of the essential features of this agreement furnished for the *Brief* by the courtesy of Dr. Roberts:

“First.—A mutual recognition by the two boards that the examinations they severally require of candidates for a license to practise are essentially equivalent, although differing in detail.

“Second.—Licentiates of the Pennsylvania Board who have received the degree of D.D.S. or other recognized dental degree are to be granted licenses to practise in New York State without examination on payment of the regular licensing fee, provided the preliminary education of the candidates is equal to that required by the New York statute; and licentiates of the New York Board are to be granted licenses to practise in Pennsylvania under the same condition.

“Third.—Applications for license under this interchange shall be endorsed in New York State by the President and Secretary of the Board of Examiners and by the Secretary of the Regents, and in Pennsylvania by the President and Secretary of the Examining Board and by the Secretary of the Dental Council, and shall be accompanied by the original or certified copies of certificates of preliminary education.

“Fourth.—All papers connected with the examinations shall be placed on file with the Regents or Council and shall be public records.

“Fifth.—Those who have received a New York State license to practise dentistry granted since 1895, or a Pennsylvania license granted since 1897 may apply for the interchange established by this agreement.”

As the standard of preliminary education in New York is higher than in Pennsylvania, this agreement will, of course, be criticized as a somewhat one-sided reciprocity; but until the educational requirements of the two States are made uniform,



either by levelling down or levelling up, no other arrangement appears practicable.

Even with its limitations this agreement between two of the leading States of the Union is an important advance in the right direction and will doubtless greatly stimulate the movement now in progress to secure full reciprocity between those States in which the educational requirement for dental licensure is essentially identical. At the present time very few of the States have a standard of preliminary education higher than the two years' high school training, or its equivalent, required as a minimum by the National Association of Dental Faculties.

Differing standards of preliminary education being eliminated, the chief remaining obstacle to full reciprocity between a great majority of the States is the varying character of the technical examinations held by their several State Boards. These must be made reasonably uniform in character and extent, and also be made a matter of public record, available at all times for inspection by the educational authorities of the States entering into the agreement. Without this publicity there can be no assurance of equivalency, and without that assurance equitable and mutually satisfactory interstate reciprocity is impossible.—*Dental Brief*.

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## A NEW ANESTHETIC COMPOUND.

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Although recent literature records a steadily increasing number of surgeons who employ pure ethyl chloride either for brief operations or as a preliminary to the administration of ether or chloroform, there is very little said about anesthol, a drug which is apparently extensively used by dentists. This latter drug is made up of 83 per cent. volume of a molecular solution of ether and chloroform, and 17 per cent. volume of ethyl chloride, which has a boiling point of 104 deg. F. It is a clear, transparent fluid of a specific gravity 1.045, agreeable in odor, and with a boiling point of 104 deg. It is a chemical combination and not a mixture. An analysis of the actual quantity of each of the three drugs contained therein shows that there is 17 per cent. of ethyl chloride, 35.89 per cent. of chloroform, and 47.10 per cent. of ether, representing a proportion of 1, 2, 3; thus corresponding somewhat to the English A. C. E. mixture.

Meyer, as a result of an extensive personal experience, notes that this drug should be administered by the drop method. He employs an Esmarch mask with a double frame, which is covered with a doubly-folded piece of sterile gauze and a piece of oiled silk, the latter having an opening of about the size of a silver

dollar in the centre. The dentists use a very ingeniously constructed mask on the same general principle. The drug should be given drop by drop. Its administration is said to be unattended by struggling. When given too rapidly there is often respiratory difficulty, but rarely any influence on the circulation.

As soon as the second stage of anesthesia has been reached, one or two drops every two or three seconds suffice. The administration of drops, however, must be continued throughout the narcosis. Because of the boiling point, very little of the anesthetic is stored in the body, the patient exhaling almost as much with each expiration as has been previously introduced on inspiration. Hence he is never more deeply narcotized than is necessary.

Because of the fact that even profound anesthesia does not always abolish reflexes, Meyer advises the administration of morphine hypodermically one-half to three-quarters of an hour before beginning anesthesia in all cases. If the reflexes still persist, an additional dose of morphine is employed. It is stated that profuse secretions of mucus and saliva never occur, that there is no cyanosis, the patient appearing to be in deep, natural sleep. The awakening is quick.

Vomiting as a sequel is rare, as are also headache, malaise and general systemic affections. Meyer notes an occasional increase in the symptoms of a previously existing nephritis, and records two deaths in his own experience, believing them directly attributable to the anesthetic.

Guth, in two other cases anesthetized by the drop method, notes that surgical anesthesia is established in the majority of cases in about eight minutes without the stage of excitement when morphine had been given.

Meyer holds that anesthol is the least dangerous of all anesthetics. This still remains to be proven, nor in view of our greater experience with ether and its well established safety can the profession be expected to adopt a new method, which from this one report would seem not even to be time-saving.

Although it is held that the chloroform and ether used in anesthol form a new compound the prejudice against the former drug is so great in large sections of this country that this alone would prevent the use of a mixture which is known to contain a large proportion of it. Moreover, Meyer notes that two cases have resulted fatally, and finds the agent so lacking in complete anesthetizing and relaxing power that he precedes its administration by hypodermic injections of morphine, a drug which in itself is highly objectionable from a surgical standpoint. The fact that the symptoms of pre-existing nephritis are aggravated suggests that even though chloroform has formed a new chemical compound, the well-known irritant effects of this drug on the kidneys are still manifested.



It would therefore seem wise to await further reports from Germany, the world's experimental ground, before possibly risking valuable American lives by the administration of an anesthetic which has not even the virtue of being time-saving.—*Therapeutic Gazette*.

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THE *Daily Mail* is responsible for the following: "The War Office has already got to work upon its plan for supplying sets of false teeth gratis to soldiers who have lost their teeth 'as a result of active service,' and local dentists have been approached in various centres with the offer of army work.

"The price allowed by the War Office to the dentists is only £1 for extraction (including anesthetic, and whatever the number of teeth), and from £2 10s. to £4 10s. for the artificial substitutes. This is not considered by the dentists to be a liberal price, inasmuch as under the present plan the soldier does not come into the dentist's hands at all until he is practically rendered incapable of duty through loss or decay of his teeth.

"One of the official dentists says that nearly all the teeth lost or ruined in the South African war were damaged by biscuits. The soldiers aver that the biscuits were almost as hard as granite, and that it was impossible to eat them unless they were soaked overnight or boiled in fat. Instances are numerous of men whose teeth were broken to pieces, and who came home with a mouth full of jagged edges.

"But according to this official dentist, the War Office plan starts at the wrong end, so far as soldiers enlisted since the war are concerned. The War Office idea is that these men shall wait until they are incapacitated for want of sound teeth, and then be sent to the dentist for a new set. The dentist's experience is that men with one or two decayed teeth are not sent to have their teeth repaired, and the repair of teeth is no part of the new plan. New sets of false teeth for old sets of natural ones is the War Office idea. What ought to be done, in professional opinion, is to appoint dentists who shall regularly examine the teeth of every soldier in the Army—twice a year—and keep the men's teeth in good repair. Recruits have to possess a sufficient number of good teeth on joining the Army, and the obvious thing to do would be to prevent their teeth from decaying.

"The Army dentist should 'stop' or 'crown' decaying teeth so that most men would never require the false sets now temptingly offered. The regular inspection and mending of teeth would probably be less expensive than the provision of new sets, and it would raise the standard of health in the Army and decrease the proportion of inefficient."—*Dental Record*.

ILLEGAL PRACTITIONERS.—July 9th, a dentist at La Junta, Colo., was arrested and fined \$100 for practising dentistry without a license. The fine was suspended on his promising to leave the town at once.—We stated last month that the license of a dentist at Omaha had been revoked because of unprofessional conduct. He appealed the case, and the State Board of Health has upheld the action of the Dental Board in revoking the license.—A dentist in New Jersey was arrested some time ago for practising dentistry without a license. The judge in the lower court found him guilty, as did the Supreme Court, and the case has now been taken to the Court of Errors and Appeals. The man's lawyers contend that because he practised in the state before the dental law was passed it is not necessary for him now to take out a license.—Characterizing their methods as a "great swindle," a judge in Philadelphia, on July 2nd, sentenced George C. Courtwright, president of the Alba Dental Co., and Wm. Powell, its manager, to one year and three months' imprisonment, respectively, upon their conviction of conspiracy to defraud. Courtwright was not a graduate of any dental college, and it was proven that students were employed and that untruthful advertising was done. A few such lessons as this would drive the fakirs out of business.—*Dental Digest*.

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SEASICKNESS.—In an article in the *Centralblatt für Innere Medizin* of February 28th, 1903, on the cause and treatment of seasickness, Binz, of Bonn, expresses the belief that the rocking of the ship produces a narrowing of the arteries of the head, thereby causing a cerebral anemia, as a result of which nausea and vomiting occur. He believes that the stomach plays only a passive role in the vomiting, which he considers to be entirely of central origin, as it occurs whether the stomach be full or empty. He also believes that the relief which follows vomiting is due to blood being forced to the brain by the straining incident to the act. As to remedies he claims that anything which causes a determination of blood to the brain will be of use. As a prophylactic measure he recommends a full meal about an hour before embarkation, and advises that the recumbent posture be maintained. Most drugs which cause a dilatation of the cerebral vessels should be administered during an attack of the malady, and of these Binz prefers chloral hydrate. He is of opinion that amyl nitrite has only a limited range of application, as its action is fleeting and its use not entirely devoid of dangers. He would not use it in attacks of seasickness of long duration.—*Therapeutic Gazette*.



## Proceedings of Dental Societies

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### PRELIMINARY NOTICE.

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The thirty-fifth annual union convention of the Seventh and Eighth District Dental Societies of the State of New York will be held at the Osburn House, Rochester, N.Y., on Tuesday, Wednesday and Thursday, October 27th, 28th and 29th, 1903. The Business Committee expect this will be a large and most interesting meeting. One whole day will be devoted exclusively to clinics. Arrangements are being made for a large number of exhibits. Reputable members of the profession who may have anything of interest they will present, are requested to communicate with the Business Committee: W. W. Smith, Chairman, 63 East Avenue, Rochester, N.Y.; W. W. Belcher, 48 Clinton Avenue South, Rochester, N.Y.; C. S. Butler, 680 Main Street, Buffalo, N.Y.; S. Eschelman, 421 Franklin Street, Buffalo, N.Y.

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### NEW ORLEANS COLLEGE OF DENTISTRY: RESIGNATIONS.

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Wm. E. Walker, D.D.S., M.D., Dean of the Faculty, President of the Board of Directors, Professor of Orthodontia and Facial Orthopedia, Microscopy, Bacteriology and Clinical Dentistry and Demonstrator of Operative, Orthodontic and Facial Orthopedic Technics; Herman B. Gessner, A.M., M.D., Treasurer of the College, and Professor of Anatomy and Surgery, General and Oral; Jules J. Sarrazin, D.D.S., ex-Dean, Professor of Dental Anatomy, Operative Technics and Operative Dentistry; Otto Lerch, A.M., M.D., Ph.D., Professor of Physiology, General Pathology and Hygiene, have resigned from the Board of Directors and the Faculty of the New Orleans College of Dentistry.

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### MEETING OF NEW BRUNSWICK DENTAL SOCIETY.

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The New Brunswick Dental Society held its fourteenth annual meeting in St. John, N.B., on July 14th, 1903, and elected the following officers for the ensuing year: President, H. W. Murray, D.D.S., Shediac; Vice-President, James Manning, D.D.S., St. John; Secretary-Treasurer, Frank A. Godsoe, D.D.S., St. John. Representative to Toronto in 1904, in *re* Dominion Council of Registration, Frank A. Godsoe, D.D.S., St. John.

## COUNCIL OF DENTAL SURGEONS OF NEW BRUNSWICK.

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At the annual meeting of the Council of Dental Surgeons of New Brunswick, held in St. John, on July 14th, 1903, the following officers were re-elected: J. W. Moore, D.D.S., St. Stephen, President; Frank A. Godsoe, D.D.S., St. John, Registrar. Board of Examiners: H. C. Wetmore, D.D.S., St. John; J. W. Moore, D.D.S., St. Stephen; Edw. Manning, Esq., St. Stephen.

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### Review

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*Principles and Practice of Filling Teeth.* By C. N. JOHNSON, M.A., L.D.S., D.D.S., Professor of Operative Dentistry in the Chicago College of Dental Surgery. Second edition, revised and enlarged. Published by S. S. White Dental Manufacturing Company, Philadelphia; and Claudius Ash & Sons, London, England.

When the first edition of this work appeared in 1900, the Journal, then edited by the late Dr. W. George Beers, made an excellent review; among other things he said "that the Canadian dentist who does not buy Dr. Johnson's book ought to be 'hung, drawn and quartered.'" To this sentiment the Journal now says Amen. A work that puts on no flourishes, but goes straight forward and treats of cases as they are and not as they might be, deserves the reception accorded the first edition. It is a great compliment to the author that before two years were up that a new edition was called for. The plan of the second edition is the same as that of the first. Many of the chapters are revised, while much new matter has been added, especially on porcelain fillings. It speaks well for the progress of a profession that can demand a revision of an up-to-date work after two years. In Canada the sale of the first edition of Johnson's work was large, and the second edition will be still larger, because as the profession gets to know more of the author through the columns of the *Dental Review* and his other publications, such as "The Poems of the Farm," and his latest production, "Success in Dental Practice," there will be an increasing demand for all he may write. It has come to this, that Johnson's methods of practice of operative dentistry are the methods of the times, and the dentist who does not know his methods is not up to the times. Get the book and read it and do not be behind. Any dental dealer in Canada will order one for you.



## Correspondence

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### PRECEPTORS AND STUDENTS.

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*To the Editor of DOMINION DENTAL JOURNAL:*

DEAR EDITOR,—Keep up the campaign against the use of preceptors. Two months' good instruction in a practical way in the college infirmary is better than a year in an office—yes, than two years. Here am I, a student sitting in a laboratory for the past month with scarcely anything to do. It is enough to make anyone go bug-house (if you will allow the word). Stir up the Board against it.

Yours sincerely,

A WEARY DENTAL STUDENT.

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## Obituary

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### DR. HERMAN M'LELLAN.

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Dr. Herman McLellan, of North Bay, died at St. Luke's Hospital, Ottawa, on July 10th, of perforating appendicitis. In his death the profession in Ontario loses one of its brightest young members. On Good Friday Dr. McLellan was out riding horseback, in company with another young gentleman, when he had the misfortune to have his left leg broken. He entered the hospital in North Bay, and subsequently went home, where he was recovering nicely until he took appendicitis. Dr. McLellan was born near Almonte twenty-seven years ago, at which place his parents still reside. He graduated from Almonte High School and taught a few years; he then entered Dr. Steele's office at Almonte in the autumn of 1896 to study dentistry, and graduated from the Royal College of Dental Surgeons with honors in 1900. He immediately commenced practice in North Bay where his ingenious personality and faithful attendance to his professional duties earned for him a substantial practice. Dr. McLellan took an active part in all church matters, having an office in the Presbyterian Sunday School. He was a member of the Masonic order and was unmarried.

# Directory of Official and Voluntary Dental Associations and Societies of Canada

## OFFICIAL

### NOVA SCOTIA DENTAL ASSOCIATION.

President—E. A. Randall, D.D.S., Truro, N.S.  
Secretary—F. W. Ryan, D.D.S., Halifax, N.S.

### PRINCE EDWARD ISLAND.

President—Dr. J. E. McDonald, Summerside, P.E.I.  
Secretary—Dr. J. H. Ayers, Charlottetown, P.E.I.

### NEW BRUNSWICK DENTAL SOCIETY.

President—H. E. Belyea, D.D.S., St. John, N.B.  
Secretary—Frank A. Godsoe, D.D.S., St. John, N.B.

### QUEBEC DENTAL ASSOCIATION.

President—J. Scott Ives, D.D.S., St. Catherine Street,  
Montreal, Que.  
Secretary—Eudore Dubeau, D.D.S., 396 St. Denis  
Street, Montreal, Que.

### BOARD OF THE ROYAL COLLEGE OF DENTAL SURGEONS OF ONTARIO.

President—H. R. Abbott, D.D.S., London, Ont.  
Secretary—J. B. Willmott, D.D.S., 96 College Street,  
Toronto, Ont.

### MANITOBA DENTAL ASSOCIATION.

President—G. J. Clint, D.D.S., Winnipeg, Man.  
Secretary—G. F. Bush, D.D.S., Winnipeg, Man.

### NORTH-WEST TERRITORIES DENTAL ASSOCIATION.

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Secretary—P. F. Size, D.D.S., Moosejaw, Assa.

### BRITISH COLUMBIA DENTAL ASSOCIATION.

President—T. J. Jones, D.D.S., Victoria, B.C.  
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## VOLUNTARY

### CANADIAN DENTAL ASSOCIATION.

President—J. B. Willmott, D.D.S., 96 College Street,  
Toronto, Ont.  
Secretary—W. Cecil Trotter, B.A., D.D.S., 412 Bloor  
Street West, Toronto, Ont.

### MARITIME DENTAL ASSOCIATION.

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ing, Winnipeg, Man.

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Secretary—W. B. Cavanagh, D.D.S., Cornwall, Ont.

### WESTERN ONTARIO DENTAL SOCIETY.

✓ President—J. Mills, D.D.S., Brantford, Ont.  
✓ Secretary—C. E. Snell, D.D.S., Essex Centre, Ont.

### BRANT COUNTY DENTAL SOCIETY.

✓ President—John Mills.  
✓ Secretary—F. Britton.

### LONDON DENTAL SOCIETY.

✓ President—A. E. Santo, D.D.S., London, Ont.  
✓ Secretary—S. Campbell, D.D.S., London, Ont.

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✓ President—H. A. Way, St. Thomas, Ont.  
Secretary—E. Honsinger, D.D.S., St. Thomas, Ont.

### TORONTO DENTAL SOCIETY.

✓ President—G. D. Martin, Toronto Junction.  
✓ Secretary—W. G. L. Spaulding, D.D.S., Yonge Street  
Arcade, Toronto, Ont.

### MONTREAL DENTAL CLUB.

President—C. F. Morrison, D.D.S., 14 Phillips Square,  
Montreal, Que.  
Secretary—A. Scott Ives, D.D.S., St. Catherine Street,  
Montreal, Que.

The above is a correct list of the dental organizations of Canada, with Presidents and Secretaries, so far as they are known to the Journal. It is the intention to keep a list of the officers of all Canadian societies in the Journal, so where there are omissions or errors please notify the Editor, who will make the correction, and as far as possible keep a corrected list, which will be of great value to the organizations.



# Dominion Dental Journal

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93 COLLEGE STREET

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No. 8.

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## INERTIA OF OUR CANADIAN COLLEGES.

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As the annual announcements of the dental colleges of the United States come to hand, the number of Canadians registered in them have been counted. This is not a very accurate means of obtaining the number of Canadians studying dentistry in the United States, as many when registering, for reasons best known to themselves, do not always say they are from Canada. Those from Nova Scotia do not register as Canadians, while those from Quebec, New Brunswick and Ontario usually do. As many as fifty Canadians are registered at one college. It can be well understood from these facts why so many announcements and other advertising literature are sent to this country. There are fully two hundred and fifty Canadian dental students taking their education in the United States. Is Canada prepared to go on rearing and educating the best of her sons for the benefit of a foreign country? It is no small loss to any country to lose its best and brightest young men. The great majority of them are not only lost to the country, but they are maintained in a foreign

country from three to four years at great expense, and at the end of this time supplied with five hundred, or perhaps a thousand dollars for equipment. Education in Canada is free until a professional school is entered. In other words, as soon as our young men are full grown and there is any money to be spent on their education by their parents, off they go to the United States. Is this condition as it should be? It does not obtain in medicine, law, veterinary or theology, and why should it be so in dentistry? The dental profession of Canada is responsible. Two years ago the attention of the Canadian profession was directed to this condition. There is as yet no change, just as many Canadians studying dentistry in the United States to-day as ever. The dental boards of some of the provinces are run as close corporations. Ontario and Quebec, the most populous provinces, are the worst offenders. They have colleges for their own and none others. If one were at liberty to write what he feels on such smallness of calibre and dearth of nationalism, it might perhaps arouse some personal antagonism, and then it would end. Why should the Dominion Government pay the expense of importing an ignorant riff-raff people from Europe while her own educated sons are going to a foreign country to swell its population? If the profession does not awaken to this condition the Immigration Department should be communicated with, and a remedy suggested. It will not do to say that all these young men have not sufficient preliminary education to be educated professionally in Canada, because those who have not matriculation for Canada cannot get it from New York State; yet there are fully fifty Canadians taking a dental course in that State, when it is impossible for them to get a license. It pays a university to give a professional education; that is why New York State looks after these young men; and if they are worth looking after for those colleges, why are they not for Canadian colleges? The whole thing is absurd; it exhibits a want of business capacity. Are Canadians so small, and each province so cock-sure of its own professional superiority, that some great calamity might befall them if they opened the doors to each other. The whole difficulty in the way of a Canadian dental profession, instead of a few provincial bigots, is the fear that their own professional standard would be lowered. Each province wants all the other provinces to raise their standard as high as their own. Most absurd! they cannot all have the highest standard.



Why should not Canada educate her own dentists, and those for foreign countries if an opportunity affords? There are two dental colleges in Canada which could have four hundred Canadian students if they wished, and not increase the number of Canadians studying dentistry. Would these young men not be worth anything to our country, even if they stayed here only the three years at college. But, who, outside of the provinces in which these colleges are located, ever heard of them? And could anyone graduate from one of them without being compelled to take out a license? Why cannot a student get a degree in these institutions without a license? They are private schools, proprietary schools, not yet big enough in the bore to be Canadian dental colleges. What is the use of talking about Dominion registration to the outlying provinces, when the colleges which should be the leaders are anything but such. In Toronto there is one of the most up-to-date, best equipped dental colleges in existence, with accommodation for one hundred additional students, and how many prospective dental students know this, or for that matter how many dentists of even Ontario know it? Very few, indeed. How many prospective students know that they can take three years in this college and be then transferred to any college in the United States to obtain their degrees, even though they have not matriculation for a license in Ontario? Very few, indeed. Such information should be spread broadcast. The fee of one additional student would pay the whole expense of sending an announcement and other literature to every dentist and physician in Canada. Up to the present we have allowed others to suggest that the college might be advertised in the DOMINION DENTAL JOURNAL, which reaches every dentist in Canada, expecting that the Board might some day see the advantage of it. A student looks over the colleges advertised, but finds that the Canadian journal knows not of a college in Toronto or Montreal, and concludes that they do not amount to much or the Journal would know something about them. Hence, we often in self-defence, use the editorial pages to advertise, because they don't cost the Board anything. The dental college in Toronto says that it is willing to educate the dentists for Canada, and then goes to sleep, makes little or no provision for their admission, and less for their acquaintance.

## REGISTRATION OF ONTARIO DENTISTS IN GREAT BRITAIN.

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Under the head of Business Transacted by the Executive Committee on the dental business of the General Medical Council, appears the following paragraph: "They considered an application made on behalf of a Canadian dentist for registration in the dentists' register, and referred the matter to the Dental Education and Examination Committee for consideration and report." No report of the committee is yet published, so little can yet be said, but if this be the case of Dr. A. G. Fraser, of London, Ont., who, on the strength of official letters from the General Medical Council, went to Edinburgh and applied for admission to the Edinburgh Dental Hospital, and was refused admission, we hope that there will be some reasonable explanation for the action of the Council or the hospital authorities.

The above paragraph says application was made for registration. If this be the case referred to, the application was made for registration only, after attendance for one year in some British dental hospital, and the passing, any examinations that might be set.

The following paragraph, taken from the report of the Secretary of the Board of Directors of the Royal College of Dental Surgeons of Ontario, explains the position of the matter as viewed from this end:

From the correspondence submitted at the last meeting, the board had every reason to suppose that a satisfactory arrangement had been made with the General Medical Council of Great Britain to accept the matriculation of our graduates; and with the College of Physicians and Surgeons of Glasgow, and the Royal College of Surgeons of Edinburgh, to admit them to final examinations for L.D.S. after completing one year of attendance at a general or dental hospital in Great Britain. This understanding has not been carried out. In September, 1902, Dr. A. G. Fraser, who took his L.D.S. and D.D.S. in April, 1902, went to Edinburgh and desired to enter with the Royal College of Surgeons to comply with the terms of the agreement. He was told he must first register with the General Medical Council. This he attempted to do, but his Ontario matriculation was not accepted, nor was he permitted to write on his matriculation with a view to completing his course in one year. The secretary of



the General Medical Council had distinctly written me, in reply to an inquiry, that as our graduates were applying to the "licensing bodies" as "diplomates" it was not necessary to register as students with the Medical Council. The end of the matter was that Dr. Fraser was obliged to abandon the idea of qualifying in Great Britain, and returned home. His father, a wholesale merchant of London, Ont., annoyed at the useless expense, made inquiry through the office of the Secretary of State for the Colonies, and later sent me an extract from a letter from Lord Onslow, acting secretary, and asked for some explanation of the fact that his son had been "turned down" in England, that he might communicate with Lord Onslow. In reply, I wrote at length, giving the history of the negotiations and copies of all the correspondence arranged in order. This I presume he forwarded to Lord Onslow, but I have not since heard from Mr. Fraser. It is quite clear that until a better understanding is reached the present paragraph referring to "Registration in Great Britain," should be omitted from our Announcement. It is probable that the matter might be easily arranged by personal interview with the dental authorities in Great Britain, but it is doubtful if it can be accomplished by correspondence.

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### FEDERATION OF TRINITY AND TORONTO UNIVERSITIES.

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The federation of Trinity and Toronto Universities has been before these institutions for many years. Two years ago arrangements were almost completed, only getting a setback by the authorities of Toronto University. The Government at that time laid down the main conditions of federation. But since then new conditions have arisen and new demands, or new necessities have presented themselves. The medical faculty of Toronto University has erected a very commodious medical building, which has splendid accommodation for all the medical students in Ontario; and besides this, a part of the expense of educating physicians is borne by the Government. Thus old Trinity was placed at a great disadvantage in money, building and equipment, all of which meant a less number of students; also Toronto, being a gainer by the union, withdrew her former objections.

Trinity University having organized a Board of Dentists, who were to look after all dental affairs in the university, and having placed the department on a sound educational basis, gives the dental profession some local as well as general interest in the matter. There are quite a number of dentists in Canada and elsewhere who hold the degree of D.D.S. from Trinity University, and these, as well as the graduates of Toronto, will be much interested in the conditions of federation. Hereafter Trinity University will give up her degree-conferring powers, excepting in divinity. Students in arts and science of Trinity will receive lectures at Trinity College by University professors, but in such subjects as require physical apparatus Trinity students will go to the physical buildings of the University. Trinity University will become a teaching college in her present location—teaching arts, science and theology—divinity students receiving lectures from their own professors. There shall be no interference with the religious rights and privileges of Trinity. Those professors of Trinity University who now teach either arts or science, will be given positions on the University staff. All students will be registered as University students, by the registrar of Toronto University. If at the end of three years Trinity is not satisfied with federation she may withdraw with all the privileges she now enjoys. The amalgamation of the medical faculty is to take place at once, and the other departments in October, 1904.

At a public meeting held at Trinity University to discuss the question of federation, the Provost set forth an unusually strong argument in favor of the principle of federation, stating: 1. Trinity was founded to continue the teachings of the Church of England in Canada, but in her present isolated position she was not reaching the sons of the church, because of her inability to give present-day instruction in the sciences; the apparatus for such instruction being too expensive for Trinity's income. 2. The church has too long kept aloof from the state, and as a consequence her people lack in good citizenship; what better plan could there be for remedying such a condition than to join hands with the state university. 3. Under independence Trinity's students in attendance was reduced to 68, while since openly declaring in favor of federation three years ago students have increased 85 per cent., and those who have money are willing to give it, and have done so in view of federation being accomplished. 4. The present



Provost, Dr. Macklem, accepted his position only on the condition of federation being the policy of the University. 5. The corporation of the university and the bishops have declared in favor of it. After the Provost's statement much opposition arose in the meeting, because it had been called by the oppositionists. The meeting was mostly composed of that stripe of clergy that puts church first and state last, and a number of hysterical women. The chief arguments against federation was the giving up of Old Trinity to the godless institution in Queen's Park, where no religious tests were required of the professors; as if to say that all the other four theological colleges federated with the University were godless. Federation, so far as the medical faculty is concerned, is a settled fact. The two faculties having joined forces, Trinity Medical School having given up her charter and buildings to Trinity University to do her best with them in a federation with Toronto. The new faculty is chosen from both schools as follows:

Anatomy.—Professor of Anatomy and Director of the Department, A. Primrose; Associate Professor of Anatomy, H. W. Aikins; Demonstrator of Anatomy, C. B. Shuttleworth.

Surgery.—Professors of Surgery and Clinical Surgery, I. H. Cameron, F. L. Grasett, L. Teskey and G. A. Peters; Associate Professor of Clinical Surgery and Clinical Anatomy, G. A. Bingham; Associate Professors of Clinical Surgery, A. Primrose, N. A. Powell, W. Oldright, N. A. Bruce and F. N. G. Starr; in Charge of Orthopedics, C. L. Starr; Demonstrators of Clinical Surgery, W. McKeown, C. A. Temple, A. H. Garratt, C. B. Shuttleworth, T. B. Richardson, J. F. Uren.

Pathology and Bacteriology.—Professor of Pathology and Bacteriology, J. J. Mackenzie; Professor of Clinical Pathology, H. B. Anderson; Associate Professor of Pathology and Bacteriology, J. A. Amyot; Demonstrators, G. Silverthorn and C. J. Wagner; Associate Demonstrators of Pathology, W. H. Pepler, H. C. Parsons and M. M. Crawford; Laboratory Assistant, T. D. Archibald. The Professor of Clinical Pathology is to give 25 lectures on gross pathology, and also conduct the *post-mortem* examinations, each *post-mortem* to count as one lecture.

Medicine.—Professor of Medicine and Clinical Medicine, A. McPhedran; Associate Professors of Medicine, J. T. Fotheringham and R. Rudolf; Professor of Clinical Medicine, J. L. Davison; Associate Professors of Clinical Medicine, Allen M. Baines.

W. P. Caven, W. B. Thistle, J. T. Fotheringham, A. R. Gordon, R. J. Dwyer and H. B. Anderson; Associates in Clinical Medicine, G. Boyd, R. Rudolf, G. Chambers, F. Fenton, H. G. Parsons and W. Goldie.

Preventive Medicine.—Professor of Preventive Medicine, Didactic and Clinical, Charles Sheard. The duties of the professor are to consist of not less than 25 didactic and 25 clinical lectures.

Materia Medica and Therapeutics.—Professor of Materia Medica, Pharmacology and Therapeutics, J. M. MacCallum.

Obstetrics and Gynecology.—Professor of Operative Obstetrics and Gynecology, J. A. Temple; Professor of Obstetrics, A. H. Wright; Professor of Gynecology, J. F. W. Ross; Associate Professor of Obstetrics and Pediatrics, H. T. Machell; Associate Professor of Pediatrics, A. M. Baines; Demonstrators of Obstetrics, K. C. McIlwraith and F. Fenton.

Ophthalmology and Otology.—Professors of Ophthalmology and Otology, R. A. Reeve, G. S. Ryerson and G. H. Burnham; Associates of Ophthalmology and Otology, C. Trow and J. M. MacCallum.

Laryngology and Rhinology.—Professor of Laryngology and Rhinology, G. R. McDonagh; Associate Professor of Laryngology and Rhinology, D. J. G. Wishart and G. Boyd.

Sanitary Science.—Professor of Sanitary Science, W. Oldright.

Toxicology.—Professor of Toxicology, W. H. Ellis.

Jurisprudence.—Professor of Medical Jurisprudence, N. A. Powell.

Mental Diseases.—Extra Mural Professors, N. H. Beemer and J. C. Mitchell.

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### NO LIMITS TO A DENTIST'S PRACTICE.

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In the discussion of Dr. J. E. Wilkinson's paper on "Oral Surgery," at the meeting of the Ontario Dental Society last winter it was stated that dentists had no more authority to practise oral surgery than they had to amputate a leg; and also, that the work of the dentist is defined by an Act of the Legislature. Such statements are not in accordance with good jurisprudence, nor in the best interests of the profession. They tend to intimidate the man who would undertake many operations he is taught to



perform by his professors at college. If the dentist be limited to operations upon the teeth alone he soon loses interest in his profession; he becomes a mechanic. In general, a dentist may do any operation about the mouth or jaws that he has been taught or knows how to do. Being a dentist gives no protection against malpractice suits. It is a question of competency, not license. There is no definition of a dentist's occupation or his limitations either in the Dental Act of Ontario or in the Medical Act, all that is necessary is to show that you know what you are about. Give a general anesthetic, prescribe drugs, or do surgery of the mouth, and no one can say that it does not belong to your scope. Of course, no wise dentist will take the responsibility of that which he is not competent to perform, and not even though he feel competent, without consultation, if much risk be incurred. The above views on this subject are well sustained by an opinion given by the late Hon. David Mills, Minister of Justice of Canada, and at one time Lecturer in Jurisprudence in the Royal College of Dental Surgeons. This opinion was given in writing to Dr. Reynolds, of Strathroy, Ont., and appears in his paper, read before the Western Ontario Dental Society, and is here quoted:

"A doctor of dentistry may practise medicine in so far as his medical treatment is incidental to his profession as a dentist. In this respect, he stands in the same relation as a surgeon, who is entitled to practise medicine in so far as medical treatment is called for on account of a surgical case. Thus a dentist may find that the affection of the teeth is due to some constitutional condition of the patient, and so he would be entitled, as a professional man, to treat his patient medicinally for the removal of pain in the teeth. If all the teeth appear sound he must consider whether his duties are not to treat the case constitutionally by the use of medicines rather than surgically by the use of the forceps. He is, so far as the treatment of the teeth is concerned, a mechanic, a surgeon and a physician, and the responsibility rests upon him in every case to decide in what capacity he must act."

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## THE ANNUAL ANNOUNCEMENT AND MINUTES OF THE R.C.D.S. OF ONTARIO.

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The annual announcement and minutes of the Board of the Royal College of Dental Surgeons of Ontario has again appeared. The announcement and the minutes are bound together for dis-

tribution in Ontario, while there are separate copies of the announcement for distribution as advertising matter, or as information for those interested who are not licentiates in Ontario. The announcement has been much improved. The cover contains a good cut of the college building. The Dental Act has been left out; the arrangement of the matter is better, and altogether presents a very understandable bureau of information to the undergraduate. The announcement of next year will doubtless contain other changes and improvements. The report of the minutes of the Board meeting deserves some special consideration. The report of one special meeting and one regular meeting containing reports of Building Committee, Dean's report, superintendent's report, financial statement, is all contained in thirty-six pages. The real proceedings of the Board, after sitting some seven days, is contained on about twelve pages. It would be interesting to the profession to have a verbatim report on some of the questions that are covered in a couple of lines in the report. The electorate would like to know what their representative had to say on many important subjects which come up. This demand is being made more and more. We have had many inquiries to the Journal on the subject. Another subject that bothers the electorate is the financial statement. How much money is invested in the college building? How much in equipment? How much in land? How much mortgage against property? When to be paid, and at what interest? How much was paid on the mortgage last year? These facts seem to be pretty hard to glean from the statement as published, otherwise it seems to be well classified and plainly stated.

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### ROOT CANAL FILLINGS AGAIN.

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In the July issue we published an article on "The Permeability of Root Filling Materials to both Bacteria and Moisture," read before the Odontographic Society of Chicago. In this issue appears an article by John I. Hart, of New York, and the discussion upon it by some of the leading dentists of that city. The main features dwelt upon by Dr. Hart were the sealing of the apical foramen, the use of iodoform paste and tin points. Those who followed in the discussion were nearly all of one mind, "the sealing of the apical end," while Dr. Evans called attention to the



importance of sealing the coronal end of the pulp canal. All agreed upon the advisability of removing all of the devitalized pulp—no strong mummifiers present. To sum the whole matter up these men have not made nor read the reports of the proper experiments, which might materially help to strengthen out the whole question, or perhaps they have not come to any conclusions from what they have read.

First, admit that all the pulp should be removed—and by the way, this is not always possible; but when it is impossible there is this in the operator's favor, the quantity of dead tissue is very small, and the tissue at the end of the root has not been disturbed by broaches, and a scar tissue is allowed to form over the end which does not exude moisture, nor favor the transmission of bacteria from the circulation; but note the condition is vastly different when there has been a marked disturbance about the apex; the tissue cells of the peridental membrane and periosteum which may form scar tissue are destroyed and there is only now left the connective-tissue cells, which may and do weep or exude moisture at any time. Hence, these apical openings, when the peridental tissue has been disturbed, should be sealed hermetically to insure no possibility of later infection, or filled with a disinfecting material that will always remain as such. Neither of these propositions is possible with our present materials. Gutta-percha, cements, cotton, and all the rest of them, will stop neither moisture nor bacteria for ever, most of them not even for a few days. These materials will not stop bacteria from either end of a canal; nor is amalgam much better; it may be possible with gold, but it is doubtful. Remove an old gold filling; wipe it off with alcohol, chloroform or strong acid; dry, then heat over a flame, and note the organic matter burn out of it. They certainly do not always prevent the passage of organic matter. Oxychloride is the most resistant to organisms among the substances tested, and it does not resist moisture, which indicates that that, too, would soon lose its resistance to bacteria. So we are driven to the conclusion, as has already been arrived at in general surgery, that absolute cleanliness is necessary in our work, and give nature an opportunity to resist any infection that may come. Nature does resist infections at all times, but the success of that resistance depends upon the quality and the virulence of the infection and the powers of resistance, which are variable. To-day we may not succumb to a typhoid infection, which to-morrow we

might, owing to a change in the power of resistance. Then, the very best that we can hope for is that nature will form scar tissue over the end of the root (which will never form if too much arsenic has been used or a pus infection occurs, or too much broaching has been done), a bland non-irritating root filling, with as positive a protection against infection from the coronal end as possible—oxychloride and a good metal filling is the best up to the present time. The teaching on this whole subject needs revision. It is of more importance to seal the coronal end of a canal than the apical; but at the same time it must not be forgotten that infection may and often does proceed from the circulation.

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### PRECEPTORS OUTSIDE OF ONTARIO.

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At the recent meeting of the Board of Directors of the Royal College of Dental Surgeons, the following resolution was passed: "That the Secretary be authorized to accept indentures of students, or transfers of the same, of any matriculant of this college to a licentiate of any province in the Dominion." This resolution opens the doors of the college to every dental student in Canada who has a University of Toronto matriculation, or its equivalent. It also opens the doors to a license to practise in Ontario, no matter from what province the candidate comes. All a candidate has to do is to matriculate and obtain from the Secretary, Dr. J. B. Willmott, 96 College Street, Toronto, blank forms of indenture and sign them with any dentist in Canada, attend college, pass the examinations and receive a license to practise in Ontario, even if he has not complied with the requirements of his own province. Surely no one can object to this as not being liberal. The next step should be the acceptance of the credentials of such a candidate by the Board of his own province. If he has been a registered student in his own province, and a matriculant, which are accepted by Ontario as equivalents of their own, he should be granted a license by his native Province if Ontario has given him a license. It would not take long to solve the Dominion registration question if advantage were taken of the above by the various provinces. The Board should now go further and cut out the preceptor altogether, which would then place the college in a position to compete with American colleges, and at the same time remove the stigma of a trade from the profession. Why should not a student get a degree in dentistry in Toronto University, without being an apprentice, or being compelled to obtain a license in Ontario? It is about time the University of Toronto should open its doors to other provinces, especially in those departments which are not in existence outside of Ontario and Quebec.



## TWO IMPORTANT MEETINGS.

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There will be two important dental meetings in Canada next year. One, the Ontario Dental Society, which will be held in February, and the other, the Canadian Dental Association, which will meet in Toronto the last week in August, or the first week in September. Both meetings will be well attended. The Ontario Society has secured the promise of Dr. A. H. Peck, on the subject of "Therapeutics," and Dr. Taggart, of Chicago, on "Porcelain Crown and Bridge-Work and Porcelain Fillings." Other papers on live professional subjects will be presented. The Canadian meeting will be, of course, the event—every province represented by its brightest men—every paper of a high standard. An effort is being made to have on the programme some of our English brethren, who will be in America attending the National Congress at St Louis. The sessions will likely be held in the new medical building, as the largest hall in the Dental College has a seating capacity of only 220, while the medical hall will seat over 300.

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### Editorial Notes

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DR. H. McLELLAN, North Bay, died of appendicitis July 10th, 1903.

As yet there is no reply to the letter by "Common Sense," in the June number, *re* Preceptors and Apprentices.

DR. S. W. McINNIS, of Brandon, Man., has again been returned to the Legislative Assembly by the City of Brandon.

THE London *Advertiser*, of July 14th, gives a description of Dr. W. A. Piper's fruit farm, which is situated near Leamington. It would appear that Dr. Piper has spent much time and money in advancing scientific fruit growing in and about Leamington.

D. M. CATTELL, for many years in the practice of dentistry at Chicago, and prominent in college work, has become a member of the faculty of the dental department of Vanderbilt University, at Nashville.

By the constitution of the Canadian Dental Association, each Provincial Board should appoint a member of the Executive Committee. The Secretary states that he has not yet been notified of these appointments. The President, Dr. J. B. Willmott, is already at work on next year's meeting, and desires to appoint the committees at once, which can be done only after the Executive is appointed.

WE learn that the author of the breezy little sketch, entitled, "An Ocean Comedy," published in the August number of the *National Monthly* of Canada, under the *nom de plume* of Max Moineau, is none other than Dr. Malcolm W. Sparrow, of Parkdale. Just why he should hide himself in a Frenchy soubriquet is beyond our ken. His work, heretofore, as a short story writer is known to be of considerable merit. But, perhaps, the doctor's innate modesty has overcome him this time. Still, those who know will understand that *Moineau* is simply the French for sparrow. The sketch referred to is a bright one, and well worth reading.

IN this issue appears an extract from the President's address of the State Dental Society of Illinois, Dr. A. H. Peck. In this address, as in all others yet published on professional honesty, or professional good citizenship, the subject is dealt with in a very superficial way. It is like saying to children, "Be good." In all honesty, each child may act in accordance with its conception of being good, and yet no two act alike. We have all heard many sermons away up in the air, but will some one come down and specify what being honest or being good in dentistry consists in, or failing in this, let some one state what is "being bad," and show his reasons for thinking so. There are many young men who do that which they would not do if some good reason were only pointed out. Will some one write an article on "How a Dentist may Conduct His Practice, and Himself up to the Highest Professional Ideals of Citizenship?"

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# Dominion Dental Journal

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VOL. XV.

TORONTO, SEPTEMBER, 1903.

No. 9.

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## Original Communications

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### ANNUAL ADDRESS OF PRESIDENT OF NEW BRUNSWICK DENTAL SOCIETY.

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BY H. E. BELYEA, D.D.S., NEW BRUNSWICK.

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Delivered, July 14th, 1903, at meeting in St. John, N.B.

Once more, as the rolling years go by, we have met in annual convention. As your president, I bid you all a hearty welcome, and invite and seek your co-operation in making this meeting such a success that each member shall be rewarded with the consciousness of having rendered some service to the profession, and of having received in return some benefit from association with each other.

The benefits of meetings of this nature cannot be too highly estimated. Man's mind is made broader, nobler, and better by contact with intelligence such as that of which our profession may boast.

It seems to be a law of nature that has held good down through all the ages, that if a man shuns his fellow mortals, he will not only fail to rise, but will just so surely deteriorate. The unused muscle becomes soft and flabby; the voice, used only in ordinary conversation, year in and year out, will fail to satisfactorily respond when an extra effort is required of it. A man shut up in the dark will soon become weak and puny from being kept away from the light. The same rule may be applied to many other cases which we meet in daily life, all of which go to prove the truth of my assertion that the talents will not be left where they are not employed. Then, may we not draw from these observations lessons by which we may see more clearly our duty toward each other as brothers in a noble profession, and to the world at large? And if any of us have been wilfully shutting ourselves up in the dark, let us go out into the sunlight, and

absorb some of the rays that may fall upon us by the interchange of thought, and the exhibition of intelligence such as meetings of this nature are capable of bringing forth.

Our society is still comparatively in its infancy, but it has already done noble work, and brought about many happy results, for which we have to thank those noble men of our profession who have, with such untiring efforts, brought to us a blessing so sorely needed. Yet there is cause for regret in the fact that the meetings are so few and far between. Having been held but once a year, much benefit that might otherwise have been derived, has not been realized. This may seem unavoidable on account of the large territory in which our members are located. It would hardly seem reasonable to expect men of St. Stephen to meet with those of Newcastle more than once a year; nor men of Moncton to convene with those of Woodstock much more often than has been their custom. However, your president thinks there is still a remedy, and it is this: The formation of local societies wherever a goodly number of dentists can conveniently get together. These might meet as often as once a month, and discuss the subject of the day as profitably as if in convention of a larger body. This would seem not only profitable, but would keep up the interest as well until the annual meeting of the general society, when all the benefits derived might be concentrated into such a meeting as would spur us on to higher attainments and greater spheres of usefulness in this world of suffering and erring humanity.

A little over two years ago saw the close of a remarkable century—an age of advancement and adoption of sound principles. The question arises: Will the one upon which we have just entered be as prolific in these forward movements? The twentieth century is still young, and we may not be in a position to fully answer this question. But, notwithstanding this fact, there have already been laid down many land-marks of progress. The minds of men are becoming more liberal. This may be seen in the fact that the nations of the world are drawing more closely together, and gradually, but surely, throwing off those feelings of animosity so long barriers to international enterprise. Colleges are extending their courses, lengthening their terms, and adding new and important subjects to their curricula.

Perhaps of not less importance is the fact that men of our profession are awakening to the idea that an inter-provincial board of registration may prove of great service, not only to ourselves, but to those who feel constrained to submit themselves to our tender mercies. This subject has been so thoroughly gone over within the last few years in dental conventions and in dental literature, that I feel it quite unnecessary to go far into the theme, even though space were afforded me, but simply wish to present the subject for your thoughtful consideration, with the



hope that you may be encouraged thereby to give this important matter a push in the right direction, nor do I care to go further into the arguments of the case than to remind you of a well-established maxim, namely: "The good of the people—the good of the profession."

To-day people are better educated on dental subjects than ever before. A certain amount of knowledge along this line is imparted to the pupils of our Public Schools. The press from time to time publishes articles intended for instruction on this subject, and the dentist who faithfully discharges his duties never fails to grasp every opportunity to throw enlightenment upon those who come within his province. Yet there is room for improvement along this line, and the question here arises: How is this to be brought about? The dentist may instruct every patient, and in so doing perform a great amount of good, but there is a vast host of uncared-for mortals whom this knowledge does not reach. I believe if more instruction along this line were given in our Public Schools, one of the most effectual channels towards this end would thus be opened up. It is in youth that we are most impressible, and instruction of this nature would be most important, and also such a sure means of reaching the masses.

The nature of this instruction is perhaps of greater importance than all else. Care should be taken that these things be placed in text-books by men who understand the subject thoroughly, and it therefore follows that such men should come from the dental profession, otherwise many misleading statements may find their way into these books, from which little good may arise, and even harm may ensue. The text-books used to-day give but a meagre idea of the care of these important organs. Beyond a general idea of dental anatomy, and the fact that the teeth should be brushed at certain times to prevent decay, comparatively little is taught that would point the careless youth toward the right direction. They should have impressed upon their minds that the general health of the body has a great influence for good or for ill upon the teeth, and that the health depends largely for its maintenance upon such things as suitable diet, exercise, and the proper discharge of the functions of all the organs throughout the body. Even this would be incomplete without at least a few words on the influence of heredity. I am frequently asked: "When is the proper time to begin to care for children's teeth?" And my reply almost invariably is, "Before the child is born." I am of the opinion that much harm has been done through carelessness or ignorance on the part of mothers, who, while the child was in fetal life, have ignored some of these simple, but all-important rules, to the detriment of the constitutions of their offsprings.

I hope the time will soon come when these facts will be

properly presented, and the schools, the press, and all such as profess themselves to be laborers for the good of mankind will unite in untiring efforts to throw light upon this subject where there exists so much of darkness.

In this matter the physician and dentist should walk together. There should be more co-operation of the two professions. A tendency towards this end was shown at the Maritime Convention held last year at Charlottetown, when the medical and dental men held a joint meeting, and discussed with much profit subjects of interest to both. May this continue to be so until the desired results shall have been attained, and until we shall find them working together for the common good of all.

In closing, let me say that I hope you will do something toward making this meeting a success, and that we shall go back to our offices with the satisfaction of knowing that our efforts will not have been in vain.

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## WHERE CRYSTAL GOLD IS USEFUL.

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BY FRANK A. GODSOE, D.D.S., ST. JOHN, N.B.

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Read before the New Brunswick Dental Society.

We have seen in recent issues of the several dental journals, considerable space and discussion given to the use of soft gold in filling teeth, but little has been said, or, at least I have seen little, that has been written concerning the merits of crystal gold—a form of gold that is of inestimable value in many cases, and which has been to me of great assistance in the inserting and repairing of gold fillings.

Whilst I do not claim to have reached the highest possible point of efficiency in the manipulation of this form of gold, I have been able in the last six or seven years to insert many compound gold fillings and fill many cervico-labial, lingual-palatal, and buccal cavities with the assistance of crystal gold, with much less fatigue to my patients, and less exertion on my part than I did previous to my using it.

I have found it of great value in the starting of gold fillings, where it has been next to impossible to get retaining grooves or pits; its ready adaptation to the walls of a cavity, which I have only been able to make of a retentive shape, appeals to me, and in frail incisor teeth with extensive caries, I have been able to insert gold fillings, starting with this form of gold, where I should otherwise have been compelled to put on a porcelain crown, against my own inclination and the wishes of my patients. I do not advise it for contouring, although



claims have been made that just as good results have been attained with it for contouring as with other golds. Possibly so, I prefer to do all my contouring with cohesive gold.

Crystal gold has been condemned by some on account of their experience being that "it crumbled and went to dust." In cases of this kind there has been faulty manipulation on the part of the operator, and in all probability, in the annealing. I find no difficulty in that respect if I properly anneal it and convey it to the cavity with a suitable instrument. It should be annealed on a mica tray or electric annealer. I have never been able to anneal it properly by passing it through a flame; nor should it be conveyed to the cavity on the point of the plugger, but should be carried by the foil carriers or with a two-pronged instrument made for the purpose.

To better illustrate my ideas, I will explain as well as I can my method of using it in starting a gold filling in a molar embracing the distal and morsal surfaces.

Consider the rubber dam applied, the cavity prepared and the matrix in place. Cut your gold in pieces sufficiently large to cover the floor of the distal portion of the cavity, and overlap the cervical edge, anneal your gold, as before stated, on a mica tray or electric annealer until it is well annealed, and carry a piece of the gold to the cavity and place it on the cervical floor, where it clings apparently without assistance; then with the largest size ball-pointed plugger that will easily enter the cavity, gently press the gold to the floor with a slight rocking motion. After you have covered the floor with this light pressure, go over it again with a heavier pressure, and then take a smaller plugger, same shape, and thoroughly condense, which you will know has been done by the bright color which the gold takes on; two or three pieces applied in this way, *each piece being thoroughly condensed before adding another* will be found to have given you a good sound foundation to build upon. If you wish, the mallet can be used at this stage to more thoroughly condense. Either soft or cohesive gold can now be used to finish the fillings in the usual manner. In combination with amalgam this form of gold is of great service. In a distal cavity of a molar or bicuspid extending below the gum, and which from even an esthetic point of view it is not necessary to fill entirely with gold, it is a great medium in combining the amalgam, and soft or cohesive gold. After applying your dam and matrix, take some of a quick setting batch of Twentieth Century alloy, and insert in cavity, filling the cavity up as far as the gum line, then carry pieces of annealed crystal gold to and place on amalgam, packing gently yet firmly. The first two or three pieces will absorb any excess of mercury, but keep on and you will soon have a good body of gold combined with your amalgam. Your cohesive gold can now be added to finish the filling, and when the whole

is completed, you have a combination gold and amalgam filling, which, I believe, is equal to any all-gold filling, and inserted with less wear and tear on the patient's nerves, and in half the time if nothing but gold had been used.

You will find this form of gold just the thing for filling cavities on the cervico-labial, palatal, buccal or lingual surfaces, especially where they extend above or below the gum, as by proper napkining the gold can be inserted rapidly with one hand, the other being used to press away the gum, it not being always necessary to apply the rubber dam. Prepare your cavity, retentative shape only; napkin the mouth; apply adrenalin chlorid to the gums, which has its astringent effect and prevents oozing; dry the cavity; with a suitable instrument press the gum away with the left hand, and carry a piece of crystal gold, well annealed and large enough to cover the floor of the cavity, to the cavity; with a large ball-shaped plugger gently press the gold with a rotary motion into the cavity; condense and apply another piece in the same manner, and continue until cavity is filled, condensing finally with finer plugger; burnish and finish in usual way.

When a gold filling is to be inserted in a tooth extensively carious, and which for various reasons requires a capping or layer of cement, this gold can be used whilst the cement is still in a certain state of plasticity, saving time and serving as an excellent medium for the filling of the cavity with other forms of gold.

One of its greatest advantages I find is in the repairing of gold fillings which for some reason have been broken or scaled away, and whilst the filling itself is intact and in good condition as regards service, its esthetic appearance has been spoiled and is not pleasing to the eye. To restore such fillings to their original contour without removing the entire filling, I have found crystal gold to be, to use a vulgarism, the proper caper. To illustrate: Some seven years ago, I had occasion to fill a superior central for a lady. The filling embraced the mesial and distal surface, and the incisive edge extending on both the palatal and labial surfaces for at least  $\frac{3}{16}$  of an inch. I filled the tooth, using gold screws for retention, but, from considerable service in masticating and a certain amount of abuse, which ladies are liable to give teeth that they can use for biting off threads, silks, or other articles requiring a pair of scissors, the gold had been chipped and worn off, so that it was shorter than its fellow, and was an eyesore to me every time I saw it. I restored it to its original condition as follows: Washed tooth with 3 per cent. peroxide of hydrogen, applied rubber dam, saturated a good-sized pledget of cotton with 50 per cent. solution of sulphuric acid, and washed the filling with same, followed by a solution of soda and two syringe-fuls of hot water, dried the filling with absorbents, and with a clean carborundum wheel squared the



edges; with a wheel bur I scratched the incisive surface of the filling, washed the filling with alcohol, and dried it with hot air; annealed the crystal gold well and applied to old filling, using same method of condensing as in other fillings, and finished with cohesive gold, thus restoring the filling to its original shape. This was almost a year ago, and the filling is as good as when restored. As I have attempted restoration with other forms of gold with indifferent success in the past, I felt rather elated at finding something which proved successful, and I feel I can recommend this form of gold for such work.

In concluding, let me impress on your minds that while I am advocating the use of this form of gold, I do not do so indiscriminately. It has its place in our list of filling materials, and has proved itself to me to be of great value in certain cases, and in this class of cases only do I recommend it, not for indiscriminate filling.

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### **DON'TS ON THE USE OF CRYSTAL GOLD.**

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BY FRANK A. GODSOE, D.D.S., ST. JOHN, N.B.

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Don't fail to thoroughly anneal the gold.

Don't anneal the gold except on a mica tray or on an electric annealer.

Don't fail to condense each piece before adding another.

Don't use any plugger in preference to the ones especially manufactured for this form of gold.

Don't attempt to carry the gold to the cavity on the end of the plugger—use the foil carriers or forked instruments made for the purpose.

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### **A HANDY ASBESTOS BLOCK.**

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BY DR. J. W. HAGEY, RED DEER, ALBERTA.

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I am using an asbestos block of my own make, and as I have found it very useful as well as easy to make, I decided to describe it and enable any dentist who may read this article to give it a trial. It is made in the following manner: Take sufficient asbestos rope, which may be obtained in any hardware store, 36 inches in length will be plenty, and coil it after a manner similar to that in which rope is coiled on board ship, until you have a coil from three to four inches in diameter. Cover this to the thickness of about one inch with a mixture of plaster-of-Paris

and punice, with some shreds of asbestos fibre. While the mass is still soft, insert three three-inch nails to form an equilateral triangle. When this hardens, you have an asbestos block that can be used on any table without danger of scorching the wood, and also at a very low cost.

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## PULP CANAL INSTRUMENTATION AND FILLING.

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BY JAS. M. MAGEE, D.D.S., ST. JOHN, N.B.

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Read at the Annual Meeting of the New Brunswick Dental Society, July 14th, 1903.

The question is often asked me, "What material do you use in filling pulp canals?" My answer is: "Gutta-percha points, of a size to *exactly* fill the canal to its apical end, with oil of cajeput as a solvent." At one time I used chloroform and gutta percha. Chloroform will cut gutta percha, and will permit of its easy introduction into a root canal, quite as well as will oil of cajeput, but should a root canal, filled with chloro-percha, be opened after a lapse of some months, and some of the filling material be passed under the nose, one can always detect a decided offensive odor. Chloroform, really cuts gutta percha to pieces; cajeput on the contrary, does not destroy its integrity, and no matter how long standing a root filling of this combination may be when removed, the only odor one can detect when sniffing at it is cajeput.

The roots of nine-tenths of the devitalized teeth met in practice to-day can be filled completely to their apices. They can be successfully opened up with Donaldson's canal cleansers, and Beutelrock drills with the assistance, in very fine tortuous canals, of 50 per cent. C.P. sulphuric acid. I prefer the right-angle drill, operating by hand. The Gates-Glidden drill may then be used to advantage, in enlarging the orifice of the canals—open by hand, and enlarge with engine. The easiest way to operate these Beutelock drills, is to use almost the same motion employed in handling a brad-awl, instead of being round and round; feeling your way without forcing. No drill should ever be run into a canal, as far as it can be, the first time it is used. It should be frequently withdrawn, and advanced little by little. Enlarge as you go, using quite a large drill at the orifice, and gradually smaller ones the farther up the canal you go, until the apical opening is reached with the smallest. One very rarely requires more than four sizes of drills. All canals should be made tapering to their apices. There are two reasons for this. With a good-sized orifice, the canal may be entered with ease, and precision, even in the posterior teeth, and when



the root filling is completed there is very little danger, should unexpected pressure be brought to bear upon it, of protrusion through the apical opening. When the canal is the same diameter, throughout its length, it is a very difficult thing to fill it completely. Unless a canal is absolutely dry when the filling is inserted, there can be no certainty of its remaining perfectly comfortable for the remainder of life; but in cases where it is, one can dismiss the patient, feeling quite sure that its end is peace. Who has not had a case, where try as he will to dry the canal, he repeatedly finds the cotton on his broach is moist at the point? It will usually be found that the canal is fine, the size is the same for some little distance from the apical opening, and capillary attraction is the cause of the moisture extending toward the crown. Open as generously as possible, and in the majority of cases the canal may be dried readily. Usually the gutta-percha points one buys at the dental depots are about the right sizes for the various canals we have to fill, but occasionally one finds an abnormally large canal, for which a point must be made to fit. The apical openings, are usually quite large when we meet these large canals, but unless an abscess has existed, there is little difficulty in drying and closing the canals completely.

To make a point that will fit, wind cotton on a broach, and screw it into the canal, until by your touch, you know it fills the canal, and by your patient's response that sensation has been felt, you know it has reached the apical opening. Measure the length of the root, and roll a gutta-percha point, slightly tapering, somewhat longer than the tooth, as nearly the size as the cotton measurement as you can guess. Try it in; if too large, roll a little smaller; if too small at the point, cut a piece off and try again. When it is the right size, it will reach almost, but not quite to the apical opening. Insert it loosely in the canal, dip the point of your foil carriers in oil of cajeput, and hold it against the gutta-percha point, just at the orifice of the canal. Capillary attraction will immediately convey the drop which your carriers have held, right up to the end of the gutta-percha point. With an easy pumping motion move the canal point up and down. The cajeput will quickly cut away the gutta-percha, which rubs against the walls of the canal, and very soon sensation will be felt. Remove the point and cut off a little piece of its end. Repeat the performance, until you feel the point sticks on withdrawal, and yet at the same time, when it is forced home, there will be but a very slight sensation, which additional pressure does not increase. The reason for preparing the canal, tapering, is obvious. No other material is so easily inserted, with an assurance that the canal is filled with absolute certainty, and from an antiseptic standpoint, such a filling is, to say the least, the equal of any yet recommended.

The dogma of "extension for prevention," should not be

solely restricted to the preparation of carious cavities. It may with even greater force be urged in connection with the treatment of devitalized teeth. However much of the crown of a tooth *must* be cut away to enable you to reach the apices of its roots, relentlessly cut it away. Don't hesitate an instant. If you reach and fill the canals perfectly, you feel assured the tooth will remain comfortable and serviceable during the remainder of life. If you fail to do so, the tooth will very likely meet with an untimely end. If, therefore, by cutting away a goodly portion of a tooth (which unless you do cut it away, will be prematurely lost) you can save the remainder for an indefinite period, by all means cut.

It is not my intention to go into the details of the medicinal treatment of canals and abscesses, my object being merely to explain how the canals should be mechanically prepared for the filling, and then, when the operator is positive that no abscess will follow the sealing up, what to fill them with.

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## Selections

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### DEGENERACY OF HUMAN TEETH.

BY E. J. LADMORE, L.D.S. (EDIN).

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Inaugural address delivered at the North Midland Branch, Bradford, May 1st, 1903.

It is somewhat difficult to select a subject of common interest for my address, as it would be an abuse of the privileges of the chair to advance any opinions which may give rise to controversy, and I have thought that the subject of "Degeneracy of Human Teeth," more particularly in its relation to caries, would be a fairly safe and suitable one for our consideration; and therefore let me explain at the outset it is not my intention to advance any new theories, as I cannot claim to be a scientific investigator of this disease, but I shall endeavor to place before you within the limits of a short paper a summary of our knowledge of this interesting subject so far as I understand it.

Dental caries is common to the entire human family, and there does not appear to be evidence of any race, prehistoric, ancient or modern, free from this disease. The late Mr. J. R. Mummery devoted much time to the examination of ancient skulls, and in the oldest of them, attributed to the Stone Age, and found in tumuli in Wiltshire, sixty-eight skulls showed only two cases of caries. In thirty-two skulls of the later Bronze Period he found seven carious teeth, and in 143 skulls of Romans buried in Britain, it was present to the extent of 32 per cent. In seventy-six skulls of Anglo-Saxons there were twelve teeth



affected. Egyptian mummies to the number of thirty-six were examined, and in eleven signs of approximal decay were present.

In examining about 160 teeth found in conjunction with stone implements in barrows of ancient British origin at Grassington in North Yorkshire, I met with only one case of true caries. That was a first mandibular molar which was worn right through the enamel of the masticating surface with a carious cavity on the mesial aspect. There were three others similarly affected, but as they were evidently from a very old mouth their condition may perhaps be attributed to senile decay. All the others were quite sound and well-formed, in many instances much worn and highly polished, showing a remarkable absence of the enamel fissures so commonly met with in our daily practice. Tartar was very much in evidence, especially at the cervical margin. The jawbones were somewhat fragmentary, in consequence of their long interment, and one mandible was much larger than the normal.

In Mr. J. R. Mummery's examination of existing primitive races, caries existed in about the same ratio as in the older ones already mentioned, and he arrived at the conclusion that in races whose food is principally vegetable, caries is much more common than in those who subsist mainly upon meat.

Messrs. Smale and Colyer, in "Diseases and Injuries of the Teeth," state that in modern civilized races the percentage of mouths containing carious teeth has increased to an enormous extent, and the collective investigations of the British Dental Association has shown that out of 10,500 English and Scotch girls and boys averaging 12 years of age, there were no less than 37,000 unsound teeth; in all 86 per cent. of the mouths were affected. In America, Germany, Hungary and other countries similar investigations have yielded very similar results. This I think is sufficient in the way of statistics for the present purpose, to show the universality of this disease, and also the amazing increase and prevalence of it at the present day. I may add that in my own practice I am always prepared to find the teeth of children in a worse condition than those of their parents.

It is obviously unnecessary here to describe the naked-eye appearance of caries, as we are all familiarized with it in our daily work, but it may be interesting to refer to what is known as to the exciting and predisposing causes of this disease. Dr. Miller says, in his work on "Micro-Organisms of the Mouth," that dental decay is a chemico-parasitical process consisting of two distinctly marked stages, decalcifying or softening of the tooth substance and dissolution of the softened residue. This decalcification is brought about by acid, principally lactic, formed from the fermentation by bacterial action of starchy food and saccharine matter, which has been allowed to remain on, and more especially between, the teeth. After decalcification the

cartilaginous portion of the tooth substance is dissolved by the action of bacteria of solution. Dr. Leon Williams says, as a result of his microscopical examination, that enamel attacked by caries is coated by a dense felt-like mass of micro-fungi closely adherent to the tooth, and he believes that the lime salts are abstracted by an acid excreted by these organisms at their point of contact with the tooth surface. On the other hand, he says he has never examined a tooth in which this felt-like mass of bacteria was not present on the approximal surfaces, even in cases where the tooth was perfectly free from caries. Here we have Leon Williams and Miller agreed as to the acid causation of caries, but they are not in accord as to the source from which the acid is derived in the first instance. There are other theories which the time at our disposal will not allow us to discuss, but it would appear that most investigators of this disease agree that the destruction is brought about, firstly, by the action of acids and completed by bacteria.

It is more than probable that heredity is an important cause, and we commonly find certain dental defects in several members of a family. As a case in point, I remember two boys, twins, about thirteen years of age, who both had remarkably good teeth, but in each mouth the second left bicuspid in the mandible had a large distal cavity, there being no other large cavity in either mouth. In another family the male parent had good teeth while the mother's were very defective. The teeth of the male children were of good quality, and those of the female children were very bad indeed. Again, in other families we find nearly all the molars and premolars full of fissures and pin holes. Crowding of the teeth, which is also hereditary, is of course a common cause. Further, it has been asserted that in the last few decades medical science has added five years to the average term of human life. This means that many of the degenerate and unhealthy have survived in defiance of Nature's law of "the survival of the fittest," and that their progeny will eventually inherit more or less the physical weaknesses of their parents, including, of course, defective dental organs.

I am fully convinced that abnormal conditions of the oral secretions are largely concerned in the production of caries; and in young mouths with thick, ropy, mucoid saliva, it is quite a common experience to find rapid white decay, which is by no means confined to the approximal borders, but occurs on any part of the enamel surface, and generally where secretion of this character is present, the whole mouth, including the teeth, looks particularly clean, and there is a marked absence of tartar deposits, pointing in my mind to a distinctly acid condition. In these cases I have frequently advised patients to use ordinary



toilet soap upon the brush instead of the usual dentifrice, with very satisfactory results.

Dr. Sim Wallace has devoted much time to the consideration of food as a factor in this disease. As a result of some 600 experiments, he concludes that food by cooking and other means is deprived of its fibrous character, and in this condition is much more liable to lodge between the teeth and so lay the foundation for the fermentative process already described. He further states that the commonly accepted theory of an acid exudation from the gingival margin will not stand examination, for after thoroughly cleansing the interdental spaces he tested with litmus paper, and found in many cases a distinctly alkaline reaction, and in only a few instances a slight trace of acidity. He also points out in support of this that many teeth have a ring of hard black or dark brown tartar at or below the gum margin which he would not expect to find under acid conditions. In confirmation of this, I myself have often noticed that in cases of approximal cavities where the cervical margin is overlapped and the cavity partly filled by a flap of gum, this part of the cavity is hard and blackened, showing all the characteristics of arrested decay.

Dr. Wallace is convinced that the acidity causing caries is derived from the lodgment of food about the teeth, and this may possibly explain why copper amalgams and phosphates so frequently disappear in cervico-approximal positions.

Max Nordau, in his work on "Degeneration," says: "Morel, the great investigator of degeneracy, traces degeneracy to poison. A race which is regularly addicted, even without excess, to narcotics and stimulants in any form, such as fermented alcoholic drinks, tobacco and opium, begets degenerate descendants who, if they remain exposed to the same influences, rapidly descend to the lowest degrees of degeneracy. To these noxious influences, however, one more may be added which Morel has not taken into consideration, namely, residence in large towns. The inhabitant of a large town is constantly exposed to unfavorable influences which diminish his vital powers far more than what is inevitable. He breathes an atmosphere charged with organic detritus, he eats stale, contaminated, adulterated food, and he feels himself in a constant state of nervous excitement. The death-rate of a large town is double that of the open country, though it ought to be less, since in a large town the most vigorous ages predominate.

"All these causes produce fatigue, and to this fatigue the whole of civilized humanity has been exposed for half a century. In our time steam and electricity have turned the customs of life of every member of the civilized nations upside down. In the last fifty years the population of Europe has not doubled, but the products of labor have increased ten-fold, in part even fifty-

fold, and every civilized man furnishes at the present time five to twenty-five times as much work as was demanded of him half a century ago.

"Its own discoveries and progress have taken civilized humanity by surprise as it has had no time to adapt itself to its changed conditions of life. This enormous increase in organic expenditure has not, and cannot have, a corresponding increase of supply. Europeans, no doubt, eat a little more and a little better food than they did fifty years ago, but by no means in proportion to the increase of effort demanded of them. And even if they had the choicest food in the greatest abundance it would do nothing towards helping them, for they would be incapable of digesting it. Our stomachs cannot keep pace with the brain and nervous system, and the latter demands very much more than the former are able to perform."

Morel says: "Degeneracy is a deviation from an original type, and it betrays itself among men in certain physical characteristics which are denominated stigmata. Such stigmata consists of deformities, squint-eyes, hare-lip, irregularities in the form and position of the teeth, pointed and flat palates," etc.

In this connection Froude, in one of his shorter Essays, compares the men of Beverley, both in stature and physique, with the men of Leeds, very much to the disadvantage of the latter, as the working classes in the West Riding especially are often much below the average height, a result probably of living and working under unhealthy conditions in the past; and in such cases as these, where the growth of the body has been stunted as a whole, it is by no means surprising that we find special organs like the teeth have also deteriorated in quality from the same cause.

Sir James Crichton Brown, in a speech at the opening of the winter term at Victoria University in 1891, says: "The present generation ages more rapidly than the preceding one, and spectacles are worn at an earlier age, and the hair begins to turn grey much sooner."

Your retiring president, Mr. Mansell, in his very able address at Liverpool last year, struck an important note on this question, and he pointed out how rarely mothers of the present day were enabled to feed their infants in the natural way, they having to resort to cows' milk and various artificial substitutes which may have a baneful effect upon the health and development of their children. He strongly advocated in such cases, where it was necessary to rear infants "by hand," that they should be fed with what is commonly known as "humanised" milk, which more nearly approximates to the composition of the human secretion. All these are important factors in this important problem of degeneration of human teeth. But there must be a greater and undiscovered cause behind them, as there is no



branch of the animal kingdom living under natural conditions similarly affected, and in this respect man stands alone. Let us hope for the benefit of suffering humanity that the day is not far distant when this great secret will be wrested from nature.

As this is a question of public health, as the causes are largely of an individual or personal character, what preventive measures have our profession to offer to the public?

Deposits upon the teeth, whether of micro-organism, tartar, or food with the accompanying acidity, point to want of cleanliness; therefore cleanliness, the use of antiseptic and of antiacid preparations are three personal precautions against the premature loss of the teeth. I have referred to the data upon which such conclusion is based. The frequent and periodic examination of, and attention to, the teeth by a careful dentist is the next precaution. The opinion is becoming more general that it is the duty of our profession to instruct the public as to the care of the teeth. It is also our duty to impress upon the poor law and educational authorities in connection with our industrial and elementary schools the great importance of examining and preserving the teeth of children under charge, as it is essentially a national question. In the great majority of instances this duty is entirely neglected by the guardians and parents of these children, and further the children themselves ought to be at least instructed how to care for and protect their teeth from decay. Indeed, I would go as far as to suggest that these precautions should be made imperative by the State. By training the young in this way the next generation must largely benefit. We as private practitioners must also instruct our patients that any work we may do for them, however elaborate in the way of conservative dentistry, will be of little avail if our efforts are not seconded by they themselves taking greater care to preserve their teeth and mouths in a healthier condition, by the diligent and efficient use of dentifrices and antiseptic and antiacid mouth-washes as indicated.

It has been said that the introduction of the knife and fork made the toothbrush a necessity, and we should give instructions how to use the brush to the best advantage. We frequently hear of the beautiful teeth of colored races, and it may not be inappropriate here to mention that they take much more care of their teeth than we do. I have been informed by a gentleman connected with the West African trade that the natives chew a particular kind of hardwood until the fibres are quite broken up and then use it like a brush, scrubbing their teeth as they walk about, oftentimes spending a whole morning in this way. The same may be said of the Hindoos, who devote much of their time to scrubbing their teeth, and I believe in all well-regulated homes among the Chinese the family toothbrush is a recognized institution.

In conclusion, Max Nordau sums up the whole question of degeneration as follows: "The degeneracy of the present day will not last. People will recover from their fatigue. The feeble and degenerate will perish, and the strong will adapt themselves to the acquisitions of civilization."—*British Dental Journal*.

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## UNIVERSITY DEGREES FOR BRITISH DENTISTS.

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BY "AN OCCASIONAL CORRESPONDENT."

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It will be noticed with pleasure by the dental fraternity that British dentists are at last beginning to consider the question of their recognition by their own universities through the medium of a degree. That matters should develop slowly is no indication that such is not desired, and having been once bitten by the faulty "Dentists' Act," 1878, there need be no wonder if the promoters of University Dental Degrees be twice shy, and delay arise. So loosely was the "Dentists' Act" drawn up that it failed alike to arrest irregular practitioners on the one hand, while on the other it made no differentiation between the practitioner who had received his license through the portals of a deliberately planned curriculum, and his *confrere* who was licensed *sine curriculo* and who to this day cannot be singled out in the British Dentists' Register. To put the matter in a nutshell, it may seriously be doubted if in any part of the world (with respect to geographical area) there is an equal proportion of irregular practitioners as is to be found in the British Islands, and that despite a "Dentists' Act" and a large association pledged to support it.

Whatever the faults may be on the western shores of the Atlantic with respect to dental education, it has always been recognized that the University Dental Department and the University Dental Degree are both powerful factors for good, not only in the United States, but also outside that country. We are not casting any slighting reflection on dental colleges, in many of which excellent work has long been done, and from which good dentists are sent out into the world; the degrees we are considering are those granted by universities where other branches of learning receive recognition.

The success or failure of the project will depend not solely upon the attitude of the universities that may be disposed to grant higher qualifications nor entirely upon the men who initiate and carry through the change, but chiefly upon the scheme that may ultimately commend itself. It would be premature, were it not presumptuous, for us to offer anything but congratu-



lation that the stone has been set rolling, let us hope in a good direction. It cannot, at least it should not, be forgotten that dentistry is *restricted surgery*, and an attempt to disassociate the child from the parent will inevitably spell failure. For this reason it is to be hoped that the dental mind in Britain, seriously regarding alliance with university learning, will not allow itself to be led away by the fantastic suggestion of dental degrees in science, as opposed to dental degrees in dentistry. I may be mistaken, but it has always appeared to me that British degrees in science indicate general, rather than special, qualification, and if this be so, the cause of degrees in dental surgery, as such, would not be advanced. We do not desire to restrict educational opportunities, and by all means let us have as many dental graduates in science or in arts as possible, better still in medicine or in surgery, but, looking broadly at the question, I venture to think that a worse intimate alliance could hardly be selected than with the Faculty of Science.—*Dental Record*.

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## EDUCATION.

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BY DR. C. L. HUNGERFORD., KANSAS CITY, MO.

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Read before the Missouri State Dental Association.

It seems to me to be axiomatic, that the primary object of teaching is to get rid of the teacher; but a somewhat extended knowledge of the present methods of dental education would indicate that the Alpha and Omega of didactic lectures are to redound to the glory, reputation and financial betterment of the lecturer. Even among those who are earnestly trying to teach, the result generally is an exploitation of individual methods and special formulas, rather than the inculcating of the broad, fundamental principles which underlie all mechanical and physiological processes; the result being that the student is left helpless, unless he can correlate every case that comes under his care with exactly similar cases that he has seen in his college work.

There is no question in the mind of the writer that we have ten times too many colleges and not one-tenth enough teachers, and, indeed, not enough departments in the present curriculum. Form, color and design are most woefully lacking, as is to be seen in the work turned out even by our best men.

A successful dentist should have for a foundation a liberal education, yet colleges accept as students men who can show a high school diploma, and I know of no college whose requirements for admission include a kindergarten examination to demonstrate the candidate's fitness to enter the dental ranks. It may be idle to discuss a uniform standard either for admission or graduation, for until this can be placed in the hands of either

the Federal government or of a sufficiently large board uninterested in any individual college, such a desideratum cannot obtain. Our present technical education is the degenerate descendant of a long line of clever, nimble nobodies who have at their finger-ends only the highly methodized and formulated news of the latest text-books. They can go through a prescribed course of preparing cavities or making plates, but outside of their beaten path they are simply fillers of space, whose type is invariable and whose number is legion. Of ideals, ambition or aspirations they have none. There is no use in wasting time in medical or mechanical devices for treating pyorrhea or constructing bridges if the standard of health diminishes as our science increases. Why spend our time in multiplying amusements when the nerve power and buoyancy to enjoy them diminishes in an equal ratio? Cannot the present century devise some way to tap the fountains of health at the spring itself? Money cannot buy it, nor can science create it, but I am optimist enough to believe it possible, for as nothing happens without a cause, if we can find teachers strong enough and great enough to face the failures of the past and inquire into their cause, we may soon hope to be provided with the means to this end.

Between knowledge and wisdom there is a gap as wide as between the polar seas. The commissary department may be stored with preserved beef, but the soldiers are dying in the field. It is useless and worthless, and will continue so until men commence to understand the purpose of life, and bend to it every energy of their being.

Reform is the heart-cry of the hour. Vast sums of money are expended by the government and private munificence to benefit and uplift, but something must be radically wrong that, with all this earnest desire to strengthen virtue and to lessen crime with the preaching of the beauties of temperance and the necessity of obedience to the laws of hygiene, we see our courts and prisons more and more crowded with criminals and an ever-increasing demand for more asylums for the insane, more hospitals for the sick—there must indeed be something “rotten in the State of Denmark.”

Who of your dental teachers have the courage to probe the abscesses of our present methods? In the beginning of things, the heart, which is Eve, gave to man, not knowledge, but the fruit of the tree of knowledge; but man has lost it by trying to keep it entirely for himself. This is the Promethean fire that was brought down from heaven, but it must boil not your pot alone, but the pot that prepares the food that shall nourish and feed your brother dentist. If this be not done, then the hiss of the serpent of selfishness will be heard in our midst, and its sting will poison and paralyze every effort.

The college-bred man of to-day has few calls on his resource-



fulness or handiness, either physically or mentally, to meet the emergencies of professional life. He lives in an appropriate pigeon-hole. Says the *London Review*: "He goes to a school where all is mapped out, with its work and its play. He goes out into life a specialist, fiddling at a piston or a valve, but if the machine breaks down he can suggest nothing, but must wait until higher powers resume their normal functions. Beyond falling in love, and a desire to best his fellows, he is never in contact with any of the elemental forces of nature his whole life long." Few men know anything of the bliss of creation, the power to do things. Why not, then, make the requirements of dental college work the ability to do something, rather than to memorize the teachings of theoretical, didactic lecturers, whose methods are as changeful as the wind, and as unstable as their fillings?

Man has, some day, to become the master of every situation that life holds. Let us commence now. Why wait for the life to come? Were I a Carnegie or a Rockefeller, I would found colleges whose requirements of admission would tend to show a student's fitness for the calling he proposes to follow, even if I had to boodle every legislature in the land. Education? Yes, that is the most needed thing in the world, say the intellectualists; but how much nearer have these gentlemen put us upon the road to happiness? Let the great army of lawyers, physicians, dentists, ministers of the gospel, whose profession it is to relieve pain, trouble and sickness, make answer; and if they answer truly it will be, "Not one day's journey." The rotten tube that is patched at the top bursts again at the bottom. What we fondly call education is but a hide-bound instruction, a gathering up into the memory of a barren erudition. The student is crammed with citations and empty ideas, with formulas and recipes. He swallows the elixir of life, but remains cold and inert as a brazen shield with a graven glyph; there is no versatility, no blossoming out of one's capacities or unfoldment of one's faculties. Education should be the guaranty of and stimulus to action. What we call talent on intellectual lines, skill on material ones, and power in moral acts have a degree of forcefulness only in the range of our own faculties and our native versatility. Education should improve those organs and those functions, discipline the will, stimulate our ingenuity, make us clear in invention, fertile in imagination.

Of course it is unavoidable that those who work in the world should have a chosen line of study, but there is no reason why they should remain ignorant of everything else. To understand anything thoroughly, it is necessary that one should have knowledge of other subjects, for everything is but a part of a universal whole.

Let us take the case of a dental student. He commences to specialize almost at the very outset of his college career. Ortho-

dontia, pyorrhea, crown and bridge work, oral surgery—whatever it may be, he directs all his attention and energy to that special department, so far forgetting the intimate relationship of all parts of the oral cavity, that cavity's connection with the body, and the body's dependence on the world in which it lives. Not only is this over-specialization the rule, but it works to its own detriment upon helpful lines. All diseases will, too generally, seem to such a student to come under his own especial fad.

For an all-round education, then, I make a special plea—for the all-round man, for one who has an ability to use his mind, with wits so trained that he can readily turn his hand to any emergency and be master of any situation that may arise. Perhaps the most valuable advantage of an all-round education is the breadth and scope it gives the mind itself, the enjoyment and usefulness it brings into life, the stimulus it brings to some brother less fortunate than its possessor—the useful hint, the practical help, the sympathy and understanding of human needs and endeavors.

Dentistry needs men, not machines which must grind out so many given yards of memorized statistics every college term. In the education of the future dentist, many things that are today considered important and essential will be looked upon as non-important, perhaps even detrimental, and some of the present side issues—fads, perhaps—will be known to be fundamentals. Let me make an illustration: I hope in the future education that a student will never be pitted against his fellows for competition or for prize; that he will not look upon his fellows as rivals to be surpassed or as obstacles to be overcome on his road to success, but rather will he look upon his fellow students as fellow-souls, travelling the same road, in nowise differing from himself in essence, learning the same lessons, struggling to arrive at the same goal together or not to arrive at all. Competition may be the life of trade, but it is the death of all art, industry and beauty—a sepulchre in which moulder all high ideals, all noble impulses.

The future education will present the question, "Have you done your best? Have you improved the tasks set before you? Have you given of your life and strength to help a weaker student?" If the answer be "Yes," be sure that as that student's need is, so shall his strength be also, for back of him will lie every gracious influence in the world that is making for good. With the future education the presence of the physician or the dentist will be an inspiration, a prayer and its fulfilment; with this all-round education we will see disappear the drones, who as soon as their tools are laid aside have no resources but to eat and drink and loaf. With them will go the bores and the cranks who can talk of nothing but their own line of business, and in their places will come men who are never bored and who never bore, who enjoy life and are useful members of society—



pleasant, helpful companions, ready to lead the world on to higher levels in other lives. Then can man in truth say:

“It matters not how straight the gate,  
How charged with punishment the scroll,  
I am master of my fate,  
I am captain of my soul.”

—*The Dental Era.*

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## CONSERVATISM.

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BY H. S. SUTPHEN, D.D.S., NEWARK, N.J.

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Read before the Southern Dental Society of New Jersey, at Camden, N.J., June 17th, 1903.

I take pleasure in again having the honor of appearing before the Southern Dental Society of New Jersey in the role of essayist. I shall attempt to point out to you in a plain, unvarnished, and straightforward way some of the mistakes we all fall into through our over-enthusiastic natures, and to suggest the remedy which experience—that great teacher!—has vouchsafed in no uncertain voice.

We are, perhaps, more than other learned professions, open to the allurements and great possibilities of the new fads and fancies—and, I may add, fallacies—of the various enthusiasts in our calling who are carried away by ideas which on their face appear to possess great value, but which upon careful trial prove to be entirely valueless or harmful, or at least less efficacious than old and tried and proved methods of practice.

### SOME EARLY FILLING METHODS—GOLD, COPPER.

Many years ago—before many, if not all, of us were even in our cradles—Dr. Arthur attempted to revolutionize the accepted method of filling, by advocating a wholesale cutting away of the tooth-structure, in making large V-shaped spaces between all the teeth. He presented the matter so forcibly before his *confreres* and the dental world generally that for several years it came quite extensively in the practice of the day. But a few years, however, sufficed to prove the extremely harmful results, not taking into consideration at all the discomfort suffered by patients in the loss of so much valuable tooth-substance and the crowding of food into the gums, with the resultant soreness. The method was soon entirely given up, amidst many wailings from both patients and operators. To the very last, however, Dr. Arthur maintained the efficacy of his method, saying in proof thereof that his work had been so eminently successful that his patients never had occasion to visit him again. Another construction, however, was given to this fact by his brothers in the profession.

Passing on from this we came to the era of extensive gold

work, when almost whole days were given to the insertion of a single filling. This was not as disastrous as the cutting away of the tooth-substance had been, but, except in the hands of a few of the superior operators, it met with but indifferent success; and much of the good that might have resulted was dissipated by the elements of shock and fatigue which are inevitable companions of such lengthy operations, and which cause more damage to the general system than the resultant good which may be accomplished.

Then we come to the copper amalgam craze, which spread over the country like wildfire. The advocates of this material proclaimed, in no uncertain voice, its positive qualities as a tooth-preserver; its ease of manipulation; its universal application in all cavities posterior to the canine teeth; its freedom from staining the tooth-structure, and other qualities that it is not necessary to mention here. As a result, thousands of ounces were used throughout the length and breadth of the land. You all know the result; how almost every point advocated in its favor was disproved, to the sorrow and mortification of its users. It may still have a place among our filling materials, but so small a one that it is hardly worthy of mention.

#### BRIDGE WORK—CATAPHORESIS—PULP MUMMIFICATION— PORCELAIN.

Bridge work then claimed our attention, and the most extensive operations were wildly advocated by leaders in this line of work. Many valuable teeth were cut off and the whole arch bridged over with only three or four indifferent supports, with the result that in a short time these failed, and the inevitable plate had to be inserted.

Bridge work properly done, intelligently and artistically constructed, is one of the best methods we have of restoring lost members of the dental arch; but it should be done with the greatest care and study of the environment.

Several years ago cataphoresis engaged our attention. Every dental meeting was occupied to a very large extent with its discussion, and the dental magazines were full of it. All sorts of appliances were put upon the market, and we all "bit" at the tempting bait—not with as much sorrow, I may add, as with many of our other investments, but with the same result, namely, that the apparatus was relegated to the topmost shelf of the laboratory, or the deepest recess of the cellar.

The harm done by cataphoresis was, on the whole, not great, the worst result being, probably, that when success was obtained in obtunding the dentine, either exposure of the pulp was brought about, or so much structure was removed, that it led to the subsequent death of the pulp, with its attendant trouble to patient and operator alike. But the time consumed in its application,



and the uncertainty of positive results, finally caused the practical abandonment of the method.

Pulp-mummification has been very strongly advocated in various sections of the country, and its disciples have been very enthusiastic in its praises. Statistics in this matter, however, have not been furnished, and I am not in possession of any facts to show whether the practice has been successful or otherwise. It certainly would be a boon to us in many instances if it could be relied upon to do the work claimed for it.

A little more than a year ago we had Archite cement placed before us in such an enticing manner, and with such wonderful promises of its remarkable properties, that we all opened our arms to it, using it with all the hope of the fulfilment of our longings for a cement filling that was to be ideal. How quickly our hopes were shattered you all know, and also the bitterness and chagrin we felt as filling after filling had to be replaced.

Shall I dwell upon porcelain? We are in it now. Its possibilities are great, and it seems to be the ideal filling for a large majority of the cavities which come to us. But its manipulation is so very different from anything we have been in the habit of doing that great care and discretion have to be used, and we should be slow in its general adoption, rather allowing ourselves to grow into its use.

#### THE TRUE AIM AND PROPER SPIRIT IN DENTAL WORK.

Our aim in all our work should be the preservation of the natural teeth; and we are in duty bound to do all in our power to attain this much. Any method, any filling, which will best accomplish this end, we should adopt, and devote our best efforts and our greatest skill to it. We have no right to experiment with new, radical methods which may cause the loss of the members we are trying to save. We should not be the first to depart from accepted methods of practice, taking up without due consideration every new thing which is presented; nor, on the other hand, should we be with the last in the procession to adopt what promises to result in good. There is a golden mean here as everywhere, and our judgment should be exercised to sift the chaff from the wheat.

Science tells us that a sound once produced starts vibration in the air which will continue as long as time endures. It is so with our work. Its results are far-reaching, and our successes and our failures alike are irrevocable; we should appreciate this in its fulness of meaning, and be most careful and conscientious and painstaking in all our operations, knowing that we are not building for an hour or a day, but for all time; not for ourselves alone, but, for our children, for the world, and for the good repute and respect and the future welfare of our beloved profession.

—*Dental Cosmos.*

## THE KAFFIR DENTIST.

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BY GEORGE CECIL.

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Although the late war, the finding of diamonds, the promoting of companies, the making of millionaires, the recent visit of Mr. Joseph Chamberlain, and the administration of justice have had their civilizing influences upon South Africa, that country is still far behindhand in the matter of dental science. It must not be imagined from this that the white man resident at Cape Town, Kimberley, or Johannesburg is unable to obtain relief when suffering from that most distracting of maladies, tooth-ache. Far from it. For at the towns mentioned there are to be found dental surgeons who are fully qualified to crown a stump or to remove a turbulent molar. It is rather of the form of dentistry prevalent among the blacks that this article will treat.

The use of instruments is unknown to the Kaffir who elects to ease his brethren of their pain. Consequently, he does not attempt to fill a tooth. Nor would he undertake the removing of tartar or the making of a plate. As an extractor of teeth, however he is always ready to cope with the most difficult work. Indeed, so anxious is he to please his patrons that he has been known to suggest removing several teeth at the price of one extraction. It is not on record that the simple sons of the soil have closed with the offer in question. In fact, the work of the Kaffir dentist is sometimes viewed with distrust by that worthy's *clientele*. Indeed, when visiting some savage tribes he is apt to go in fear and trembling of his life, being made to think that he will be handed over to the tender mercies of the priests of the Long Ju-Ju should he cause pain to a patient. It may be added that when the time of sacrifice is nigh his services are in great request. At such moments he finds it expedient to absent himself from his home and to leave no address behind him.

The *modus operandi* of extraction as practised by Kaffir dentists is as follows: The afflicted black makes his appearance at the door of the dentist's kraal accompanied by three or four well-grown Kaffir men. Having paid the fee in advance, he squats on the ground, his companions holding his hands and legs in order that his struggles may not avail him. The dentist then keeps his mouth open by means of a plug, and, with the point of an assegai, proceeds to loosen the tooth. After a few minutes of this torture the long-suffering and afflicted patient notifies that he has reached the limit of human endurance. He then departs with his friends, but returns every day until the tooth is eventually removed. It is, in this connection, interesting to note that no antiseptic of any description is used and that the blade of the assegai is often far from being clean. This state of



things, however, does not disturb the patient in the least. He is quite happy to know that he is in the hands of the "medicine man" and that he will, as a natural sequence, be cured of his ailment. As may be imagined, the laceration of the patient's gums frequently results in blood-poisoning and similar catastrophes, whilst often for days after this primitive operation the unfortunate Kaffir is unable to take any but liquid nutriment. He, however, hails with delight any opportunity of imbibing the cheap and poisonous whiskey which is sold by the missionary element.

It occasionally happens that the black who is suffering from toothache combines a visit to the dentist with one to the white trader with whom he wishes to do business. It is thus quite a common sight to find a native grower of country produce sitting near the verandah of the English merchant's house having an assegai applied to his tooth whilst waiting to see the white man. Should the patron appear upon the scene in the middle of the operation, the Kaffir will signal to the dentist—by means of wriggling—to release him. Upon transacting his business he will again resign himself into the hands of the executioner.

Like the natives of India, the Kaffirs of South Africa take great care of their teeth and are, consequently, in the happy condition of being but rarely compelled to seek dental treatment. From their earliest childhood they are taught to spend at least an hour every day in brushing and polishing their molars. The result is that by the time they reach man's estate they are in possession of a set of "ivories" that excite unholy feelings of envy in the breast of every white man who sees them. Many Kaffirs, indeed, can crack an exceptionally hard nut between their teeth without the slightest difficulty. Some of them, too, are able to open canned provision tins by the same primitive method.

In common with their Kaffir brethren, Zulus and Hottentots have a great belief in the efficacy of their own "medicine men," or "witch doctors," to cure them of toothache. As the treatment they experience at the hands of these worthies is invariably of a nature that is both drastic and heroic, they refrain from consulting them until the last possible moment. The gentlest means adopted by the Zulu "dentist" of dealing with a patient consists in tying a thin piece of hide to the doomed tooth and then vigorously jerking it downwards! Sometimes the end of the cord is fastened to the handle of a door. The sufferer, securely grasped round the chest by a couple of stalwart assistants, stands about a foot away—and says his prayers. Suddenly, at a given signal, the door is slammed violently, and in nine cases out of ten the molar flies from the jaw dangling at the end of the string. If this does not happen at the first attempt, a second one is promptly made, weirdly-sounding spells

and incantations being muttered during the interval. The patient's friends always take a great interest in the proceedings, and the operation is performed in the presence of all the inhabitants for miles around.

Should the method just described fail after repeated trials, the Zulu "dentist" does not confess himself beaten. Far from it. His resources are by no means exhausted by this one experiment. He has numerous other ones in reserve, and makes it a point of honor to adopt them all in turn until the extraction is successfully performed. Directing the sufferer to lie on the ground, he signals to a couple of brawny assistants, who kneel on his chest. A wooden peg is then inserted between the upper and lower jaws. All being then in readiness for the operation, the native doctor calmly proceeds to knock out the offending tooth with a lump of rock, loosening it from its socket beforehand with the point of a knife. Occasionally—for the patient is unable to explain matters while undergoing the treatment—the wrong molar is removed. In these circumstances he is given two extractions for the price of one. Strange as it may seem to say so, the arrangement is considered eminently satisfactory by all parties concerned, for, like the Irishman who bought a first-class railway ticket and travelled third, the patient quite thinks he has got the best of the bargain.

The fee of the Kaffir or Zulu dentist is always paid in kind. As a rule, it takes the form of a small quantity of beads, copper wire, or gunpowder, the precise amount depending on the relief afforded. When the tooth has been extracted it becomes the perquisite of the operator. As may be imagined, the most fashionable practitioners soon amass large collections of these souvenirs. They usually make them up into necklaces, with which they adorn their dusky persons.—*Dental Brief*.

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## RELATION OF THE DENTAL PROFESSION TO PUBLIC HEALTH.

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Dr. Arthur Newsholme, in a paper read before the British Dental Association, disputed the accuracy of the statement that all measures of preventive medicine and public health tended to keep alive the weaklings of the race, and thus caused a deterioration of the general standard of national health, arguing that experience showed that acute infectious diseases attacked the robust as well as the weak where exposed to them, and that the deteriorating effect of the survival of those maimed by an attack was counterbalanced by the large number of persons who were prevented from contracting disease by improved sanitary and social



conditions. Coming to the subject of the cure and prevention of dental diseases, he showed that this must improve the prospects of health and assure a longer life than was possible to those having decayed and septic teeth. He maintained that all the exact evidence available tended to the conclusion that our national physique had improved. The death-rate had declined and the expectation of life improved. Having quoted statistics showing that between 1861 and 1902 the death-rate in Brighton had fallen from 25.6 to 15.8 per 1,000, and the expectation of life had increased, he stated his conviction, based on careful revision of all available evidence on the subject, that there was no valid evidence of widespread national physical degeneration, but that in most respects the physique and health of the community had improved. Considering the causes of this improvement and the fact that food was a supremely important factor in health, he said he had no hesitation in saying that although immense good had been done by modern sanitary reforms, the abolition of the corn laws effected more for the national health than any other influence during the nineteenth century. He went on to remark that he who would increase the food bill of the poor without ensuring for them at least a corresponding increase of earnings was going far towards undoing the good achieved during the last fifty years, and preparing the way for a higher sickness and death-rate and for much national misery. Passing on, he quoted figures showing the great increase in the number of candidates for the army rejected through bad teeth; but after inquiring into the causes of rejection, he thought that these and other figures he mentioned left it an open question whether there had been any marked increase in defective teeth among the general population during the last sixty or seventy years. They indicated, however, the need for national action for the prevention of dental caries in the interests of an official army as well as of public health. Going on to refer to the condition of children's teeth in industrial and other schools, he quoted figures showing that out of 3,800 children from three to sixteen years of age, who had been examined by a friend of his, 5,678 temporary and 5,071 permanent teeth were found to be unsound, there were only 21.8 per cent. of sound dentitions, and only one out of five children had completely sound teeth. He went on to declare that the importance of the teaching of oral hygiene and the employment of a dental surgeon in connection with every industrial and other resident school under public control, could not be exaggerated, and ventured to urge upon the Association the importance of collective investigation into the amount of caries among different communities. Having discussed the influence of nationality, and compared the dental condition of the ancient with the modern, and the savage with the civilized man, Dr. Newsholme spoke of the lowering effects which bad teeth had

upon the general health, and their tendency, not only towards throat and stomachic diseases, but towards opening a way into the lymphatic and general circulation for injurious micro-organisms and toxic products, and declared that it was, therefore, a matter of national importance that the causes of caries should be recognized and preventive measures taken against them based on a sound knowledge of causation. Whatever the exact agent in producing caries, he said there could be no doubt of the importance of the use of the tooth brush and of dentifrices in its prevention, and the main object of oral hygiene was to ensure their use at least twice daily. In considering the effects of sugar and starchy foods on the teeth, he suggested that the remedy lay rather in the direction of washing the mouth after meals, and forbidding sweetmeats between meals, than in restricting the total amount of these foods. He also considered that the impression that the supposed increase of caries might be due to the substitution of fine roller-ground flour, for the old stone milled article was founded on unsatisfactory evidence, and remarked that dentists frequently recommended their patients to prefer brown bread under a misapprehension as to the greater nutritive qualities of brown bread, which actually did not exist. One very important investigation was within the reach of every dentist, which, if systematically pursued on definite lines, and the results carefully tabulated, would be very valuable. The practice of artificial feeding of infants had greatly increased, and had lowered the vitality and increased the death-rate of infants. Did it leave any ill effects on infants who survived infancy? No better test of this could be found than in the condition of their teeth. In conclusion, he suggested that most important immediate preventive measures might be taken as follows: (1) the teaching of hygiene should be made compulsory in the general classes of all elementary schools, and the hygiene of the mouth should form an important part of the subject; (2) the enforcement of daily cleansing of the teeth should be organized in all residential schools, especially those for which Boards of Guardians and educational authorities were responsible; (3) the medical profession could give great impetus to dental reform by examining the teeth of all children attended by them, and by inculcating in parents the necessity of regular cleaning and for early attention to caries; (4) every industrial and other school authority should employ a dentist to remove or "stop" carious teeth in children, to remedy dental irregularities and to organize methods of dental hygiene.—*Dental Record*.



## Proceedings of Dental Societies

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### REPORT OF THE EASTERN ONTARIO DENTAL ASSOCIATION MEETING AT BROCKVILLE, JULY 7TH, 8TH, AND 9TH.

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The twenty-fourth annual meeting of the Eastern Ontario Dental Association was held at the Strathcona Hotel, Brockville, on July 7th, 8th, and 9th. A large number of dentists were in attendance, and all showed great interest in the subjects presented.

The convention was opened by an Address of Welcome by the president, Dr. H. A. Clark, of Brockville, who assured those present that they would have the pleasure of listening to and discussing some very interesting papers by prominent men in the dental profession. After the reading of the minutes and financial statement the following officers were elected: President, Dr. W. J. Gunn, Lancaster; Vice-President, Dr. J. R. Mitchell, Perth; Secretary and Treasurer, Dr. W. B. Cavanagh (re-elected), Cornwall; Supervisor of Clinics, Dr. A. W. Winnett, Kingston; Membership and Ethical Committee, Dr. W. J. Gunn, Lancaster; Dr. A. A. Smith, Cornwall; Dr. A. H. Mabey, Gananoque; Programme Committee, Dr. H. A. Clark, Brockville; Dr. W. A. Winnett, Kingston; Dr. W. H. Graham, Ottawa. Drs. G. E. Hanna and R. E. Sparks referred to the deaths since last meeting, of Drs. W. Brace, of Brockville, and E. J. Sanderson, of Ottawa, and the following resolutions were passed: "Since it has pleased Divine Providence, in His infinite wisdom to remove from our midst Dr. Wm. Brace, of Brockville, who was one of the charter members of the Eastern Ontario Dental Association, and who at all times manifested active interest in its affairs. Dr. Brace was an enthusiastic member of his profession, making professional honor and dignity first considerations. Resolved,—That the members of the E.O.D.A. here assembled express profound sympathy with the bereaved family in the great loss they have sustained, and record our appreciation of the efficient co-operation of our departed confrere. Resolved,—That a copy of this resolution be forwarded to Mrs. Brace."

"It is learned with deep regret that since the last meeting of the Eastern Ontario Dental Association, death has removed a promising young member of the dental profession and of this Association, Dr. E. J. Sanderson, of Ottawa. The circumstances are peculiarly sad, following as it did his recent marriage. Resolved,—That we, the members of the E.O.D.A., express our sincere sympathy with the wife and friends of the late Dr.

Sanderson in their bereavement. Resolved,—That a copy of this resolution be sent to Mrs. Sanderson."

Dr. M. G. McElhinney, Ottawa, read a very interesting paper on "The Proposed Dominion Dental Law," which elicited much discussion. The essayist claimed that as Canada was the most advanced in our profession of the colonies should lead by the enactment of a general Canadian dental law. He pointed out several reasons why we proceed so slowly: (1) The various provincial standards should approach as nearly as possible to the highest; (2) the underlying fear that the adoption of a reduced standard would cause an influx of low standard practitioners into those older and wealthier provinces heretofore protected by high standard; (3) the changing of the constitutions of the different provinces; (4) the single standard is premature.

The essayist asserted that by a little effort those objections could be overcome, and the attainment of one standard is a noble, national work. The paper was discussed by Drs. Smith, Burns, Mitchell, Webster, Adams, Gowan, Clements, Hanna and Sparks, all of whom spoke favorably to the forming of a common Dominion dental law.

The preceptor question came in for some discussion, and it was thought by all that the time had come when preceptors as part of our educational system, must go. At present the requirements exacted by the college cannot be fulfilled by the preceptor. It was the opinion of all that a spring course should be opened for students of every year, and the work should be practical.

Dr. A. E. Webster, Toronto, read a paper, "Some Thoughts on the Subject of Orthodontia." The essayist gave a great deal of care and thought to the preparation of his paper. He explained the lines that show the correct symmetry of the face, and it was by these lines the dentist must judge the correct position of the teeth. He also showed a great many models with appliances attached for regulating.

Dr. J. F. Van Allen, Camden, N.Y., read a paper on "The Construction and Setting of Gold-Backed Crowns." His method is different from the Richmond, a modification of that crown. In setting the crown he advocates the use of gutta percha, as it possesses qualities such as non-solubility, non-conductivity, and its elasticity is a protection to the facing, acting as a cushion during mastication. The crown is also easily removed for repairs.

Dr. W. H. Graham's paper on "Professional Honesty" was listened to with interest by all. The writer pointed out that it pays the dental practitioner to adhere closely to ethical principles and unflinching honesty of action. A successful dental practice is one that preserves the greatest number of teeth in a comfortable and useful condition, and relieves humanity of a great amount of suffering. We should ever be ready to say a



kind word about our professional brother, as we must all look back upon work we have performed some time in our practice with a great deal of humility. We should at all times refrain from deceiving our patients unless it be for their benefit, for the chances are that when a patient discovers the falsehood, we will not only lose his confidence, but likely to lose the patient as well. We owe freely to our patients the best that is in us, and no reward can be greater than that of the man who can look back at the close of a long life of professional activity, and see there nothing but honest work honestly done.

A paper by Dr. G. M. Hermiston, of Picton, on "Neglect of Children's Temporary Teeth" commanded great attention. The essayist enumerated many of the great evils that result from the neglect of these teeth, and mentioned that while societies were formed to prevent cruelty to animals, thousands of innocent helpless children, are being neglected, and not even given the thought and care of dumb creatures that run the streets. The dentist should take his share in the education of the parents and children, even if they are not remunerated for their services.

Dr. R. M. Armstrong, Ottawa, gave a paper entitled "Dental Hygiene." He discussed the subject under two heads, viz.: (1) The duty of the dentist; (2) the duty of the patient. It is the duty of the dentist to put the mouth in a thoroughly hygienic condition. He must also instruct his patient to keep the mouth in that condition, and to return at intervals to have the mouth examined. The patient's duty consists in carrying out the instructions of the dentist.

Dr. Ira Bower, on behalf of the Committee *re* Dental Surgeons in the Army, reported progress, and said that they were meeting with success in their efforts.

Dr. A. E. Webster, Dr. J. F. Adams, Toronto, and Dr. W. C. Gowan, Creemore, were elected honorary members of the association. On the afternoon of Wednesday clinics were given in the office of Dr. Woodrow. Clinic on "Banded Logan Crown," by Dr. Woodrow, Brockville; "Amalgam Filling, Using Matrix," Dr. Gowan, Brockville; "Method of Preparing Gold Foil for Cavity Filling," Dr. Sparks, Kingston; "Gold Filling," Dr. Hanna, Kemptville.

Dr. J. R. Mitchell gave a very interesting clinic illustrating the use of a facing designed by himself for use in crown and bridge-work, for avoiding the heating of porcelain, and for easy repairing of crowns and bridges. Dr. Mitchell was highly complimented upon his invention by the members present, and a vote of thanks was tendered him for his kindness in illustrating his method to the members of the Eastern Ontario Dental Association.

Kingston was selected as the next place of meeting.

On Tuesday evening the visiting dentists accepted the invita-

tion of a trip up the river to Alexandria Bay by the resident dentists. The delegates were accompanied by the members of the medical profession, friends, and a number of ladies. The visitors were allowed about half an hour for sight-seeing when the return trip was made. All were well pleased with the outing, which proved a most enjoyable one in every respect. A vote of thanks was tendered the resident dentists for their courteous treatment and entertainment while in the city.

W. B. CAVANAGH, *Secretary*.

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**FOURTH INTERNATIONAL DENTAL CONGRESS,  
TO BE HELD AT ST. LOUIS EXPOSITION,  
AUGUST 29TH TO SEPT. 3RD, 1904.**

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Committee of Organization Dental Congress: H. J. Burkhardt (Chairman), E. C. Kirk (Secretary), R. H. Hofheinz, Wm. Carr, W. E. Boardman, V. E. Turner, J. Y. Crawford, M. F. Finley, J. W. David, Wm. Crenshaw, Don M. Gallie, G. V. I. Brown, A. H. Peck, J. D. Patterson, B. L. Thorpe.

The Department of Congresses of the Universal Exposition, St. Louis, 1904, has nominated the Committee of Organization of the Fourth International Dental Congress which was appointed by the National Dental Association, and has instructed the committee thus appointed to proceed with the work of organization of the said Congress.

Pursuant to the instructions of the Director of Congresses of the Universal Exposition, 1904, the Committee of Organization presents the subjoined outline of the plan of organization of the Dental Congress.

The Congress will be divided into two departments: Department A—Science (divided into four sections). Department B—Applied Science (divided into six sections).

**DEPARTMENT A—SCIENCE.**

1. Anatomy, Physiology, Histology, and Microscopy. Chairman, M. H. Cryer.
2. Etiology, Pathology, and Bacteriology. Chairman, R. H. Hofheinz.
3. Chemistry and Metallurgy. Chairman, J. D. Hodgen.
4. Hygiene, Prophylaxis, Therapeutics, Materia Medica, and Electro-Therapeutics. Chairman, A. H. Peck.

**DEPARTMENT B—APPLIED SCIENCE.**

5. Oral Surgery. Chairman, G. V. I. Brown.
6. Orthodontia. Chairman, E. H. Angle.



7. Operative Dentistry. Chairman, C. N. Johnson.
8. Prosthesis. Chairman, C. R. Turner.
9. Education, Nomenclature, Literature and History. (To be appointed.)
10. Legislation. Chairman, Wm. Carr.

COMMITTEES.

The following committees were appointed:

- Finance. Chairman C. S. Butler.
  - Programme. Chairman, A. H. Peck.
  - Exhibits. Chairman, D. M. Gallie.
  - Transportation. (To be appointed.)
  - Reception. Chairman, B. Holly Smith.
  - Registration. Chairman, B. L. Thorpe.
  - Printing and Publication. Chairman, W. E. Boardman.
  - Conference with State and Local Dental Societies. Chairman, J. A. Libbey.
  - Dental Legislation. Chairman, Wm. Carr.
  - Auditing. (Committee of Organization.)
  - Invitation. Chairman, L. G. Noel.
  - Membership. Chairman, J. D. Patterson.
  - Educational Methods. Chairman, T. W. Brophy.
  - Oral Surgery. Chairman, G. V. I. Brown.
  - Prosthetic Dentistry. Chairman, C. R. Turner.
  - Local Committee of Arrangements. (To be appointed.)
  - Essays. (To be appointed.)
  - History of Dentistry. Chairman, Wm. H. Trueman.
  - Nomenclature. Chairman, S. W. Foster.
  - Promotion of Appointment of Dental Surgeons in the Armies and Navies of the World. Chairman, Wm. Donnally.
  - Care of the Teeth of the Poor. Chairman, Thomas Fillebrown.
  - Etiology, Pathology, and Bacteriology. Chairman, R. H. Hofheinz.
  - Prize Essays. Chairman, James Trueman.
  - Oral Hygiene, Prophylaxis, Materia Medica, Therapeutics, and Electro-Therapeutics. Chairman, A. H. Peck.
  - Operative Dentistry. Chairman, C. N. Johnson.
  - Resolutions. Chairman, J. Y. Crawford.
  - Clinics. Chairman, C. E. Bentley.
  - Nominations. (To be appointed.)
  - Local Reception Committee. (To be appointed.)
  - Ad interim*. Chairman, G. V. I. Brown.
- The officers of the Congress, president, vice-presidents, secretary, and treasurer, will be elected by the Congress at large at the time of the meeting, and will be nominated by the Nominating Committee.
- The Fourth International Dental Congress, which will be

held August 29th to September 3rd inclusive, 1904, will be representative of the existing status of dentistry throughout the world. It is intended further that the Congress shall set forth the history and material progress of dentistry from its crude beginnings through its developmental stages, up to its present condition as a scientific profession.

The International Dental Congress is but one of the large number of congresses to be held during the period of the Louisiana Purchase Exposition, and these in their entirety are intended to exhibit the intellectual progress of the world, as the Exposition will set forth the material progress which has taken place since the Columbian Exposition in 1893.

It is important that each member of the dental profession in America regard this effort to hold an International Dental Congress as a matter in which he has an individual interest, and one which he is under obligation to personally help toward a successful issue. The dental profession of America has not only its own professional record to maintain with a just pride, but, as it is called upon to act the part of host in a gathering of our colleagues from all parts of the world, it has to sustain the reputation of American hospitality as well.

The Committee of Organization appeals earnestly to each member of the profession to do his part in making the Congress a success. Later bulletins will be issued setting forth the personnel of the organization and other particulars, when the details have been more fully arranged.

H. J. BURKHART, *Chairman.*

E. C. KIRK, *Secretary.*

*Approved,*

HOWARD J. ROGERS, *Director of Congresses.*

DAVID R. FRANCIS, *President of Exposition.*

—*Dental Cosmos.*

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## NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

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It is earnestly requested that all the secretaries of the Boards of Examiners throughout the States and Territories mail to the secretary all changes in their respective Boards and greatly oblige,

CHAS. A. MEEKER, D.D.S., *Secretary.*

29 Fulton Street, Newark, N.J.



## PROPOSED FEDERATION OF TRINITY UNIVERSITY WITH THE UNIVERSITY OF TORONTO.

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The following memorandum on federation has been prepared by direction of the Corporation of the University of Trinity College, with a view to correcting certain mis-statements which have been circulated with regard to it.

The policy of federation with the Provincial University, on condition that suitable terms could be obtained, was finally adopted by the Corporation of Trinity University early in 1900, and a committee was appointed by whom negotiations were soon afterwards entered upon with a view to securing acceptable terms.

The following considerations, among others, weighed strongly with the Corporation in adopting this policy:

The conditions under which the work of the university had been carried on for nearly half a century were not satisfactory (for reasons which will be referred to presently), and a change of some kind had come to be imperatively necessary.

Federation with the Provincial University—always supposing the terms of federation to be fair and honorable—seemed to offer the best solution of the many problems with which the Corporation had to deal, and to meet the various difficulties in a way which was at once the most practical, economical, and satisfactory.

Accordingly, when the policy of federation on fair and honorable terms was finally submitted to the vote of the corporation in April, 1900, it received the almost unanimous approval of that body. The result was duly announced to the graduates and friends of Trinity, and to members generally of the Church in Ontario, by means of the public press, the Year Book, and the annual reports to the several synods of the Church in the Province of Ontario.

Now, after three years of patient and painstaking negotiation, satisfactory terms of federation have been agreed upon by a joint committee of the two universities, subject to the approval of both universities. These terms have been published, and have doubtless received your careful consideration.

It may not be amiss to point out here that among the innumerable supporters of the policy of federation are to be found nearly all those who have been in closest touch, officially or otherwise, with the affairs of Trinity in late years, and who have had the fullest knowledge of all the facts. Among these, we would mention, especially, the following: The Hon. G. W. Allan, our late Chancellor; the present Chancellor, Mr. Christopher Robinson, K.C.; the three last Provosts, Dr. Body, Canon Welch, and the present Provost; Dr. Roper, formerly Professor of Divinity;

Professor Clark, a member of our staff for the past twenty years; Professor Rigby, Dean of the College; the three Chairmen of Convocation, Dr. J. A. Worrell, K.C., Mr. Barlow Cumberland, M.A., and the present Chairman, Mr. D. T. Symons, B.C.L.; the present and the former Clerks of Convocation (whose office brings them into touch with the graduates and friends of Trinity throughout the country), including the Rev. Gilbert F. Davidson, who as travelling secretary for the university had exceptional opportunity for feeling the pulse of the country; the Chairman of the Board of Endowment and Finances, Mr. E. B. Osler, M.P., and the treasurer, Lieut.-Colonel Pellatt, as well as all the other members of the Board.

Besides these, federation enjoys the support of a very large majority of the members of the corporation, which is composed of the Bishops of the Church in Ontario, and of representatives of every diocese in the Province, of all the affiliated colleges, of the teaching staff, of the graduates (being members of Convocation) in Arts, Divinity, Law, and Medicine, and of the associate members of Convocation.

The knowledge that men who have had such intimate acquaintance with the affairs of Trinity, and who have always enjoyed so completely the confidence of her friends and supporters, have after years of patient investigation accorded to federation their hearty and loyal support, ought to serve to allay any fears which may have been aroused by the recent mis-statements, or otherwise, and which it is now the object of the corporation to remove.

The foregoing is a very brief summary of the situation, which may now be set forth at somewhat more length.

We have said that the conditions of the past had ceased to be satisfactory, and that change of some kind was necessary.

In the past half century the general conditions of university education have undergone a complete change the world over. A general course in studies well described as "the humanities," which was deemed a liberal and sufficient education when Trinity was founded fifty years ago, has gradually given place to specialization in a score of departments, not more than half of which were considered necessary to a well-equipped university at that time, and to such extraordinary development in the department of science as to demand to-day for the adequate maintenance of that one department alone, an expenditure which would have more than sufficed for the full expenses of a university half a century ago. For these and other reasons, Trinity's resources were no longer adequate to the work of a university which aspires to hold an honorable place in competition with similar institutions. To attempt to spread these resources over so wide a field could only result in weakening their power for good. On the other hand, to concentrate them as far as possible,



upon the departments which have always been Trinity's stronghold, would make for more thorough and efficient work. This can be done more satisfactorily and with better results under the plan of federation now submitted than in any other way.

According to this plan, Trinity will be able to concentrate her resources, in the first place, upon those subjects which, as an Arts College in the federation, it will be her especial function to teach, and in the second place upon her residential system. The autonomy of Trinity as a college will not be interfered with, and her opportunities of doing good work by means of her invaluable collegiate life, with the social intercourse and the religious influences and worship which are characteristic of her residential system, will be greatly enlarged. With half a million dollars added to the present endowment, Trinity College could do, in federation, far better and more efficient work for both Church and State than it would be possible for her to do as an independent university with two or three times that sum.

By federation Trinity will be relieved from the expense of maintaining any of the following courses of study, free instruction in all of them being offered to her students in the State university: Mathematics, physics, astronomy, geology, mineralogy, chemistry, biology, physiology, history, ethnology comparative philology, Italian and Spanish, history of philosophy, psychology, logic, metaphysics, education, political science, including political economy, jurisprudence and constitutional law, and constitutional history.

Manifestly, the advantages of such co-operation are many and the disadvantages few. Trinity will remain true to the traditions of the past, and be able to exert a wider influence for good than would be possible for her in isolation. By reason of her position as a separate and independent college she will retain all the advantages of individual knowledge of the students, personal oversight of their studies, and that careful attention to formation of character, which can only be given where numbers are not unwieldy. She will gain all the advantages of a large university—the greater value of the degree, the competition with the larger body of students, and the use of that expensive scientific equipment which only large universities can afford.

Since the students of Trinity will be brought into direct competition with the main body of university students in the Province, the value of the standing which they may take will be greatly enhanced. There will be a corresponding increase (in the estimation of the public) in the value of the degree which they receive, by reason of the fact that it will have been won under the curriculum and general conditions prescribed by the State University. A practical bearing of this may be seen in the case of appointments to teaching positions in the high schools and collegiate institutes of the Province, from which Trinity

students have been almost entirely excluded heretofore by the regulations of the Education Department. That such exclusion was grossly unjust we have always contended and do still contend, but it remains a fact nevertheless. One natural result of such exclusion has been that very few students intending to qualify themselves for the teaching profession have come to Trinity, and the Church is in danger of losing her rightful place and share in this important sphere of influence upon the young.

Not least among the changed conditions of to-day are those which have taken place in the Provincial University itself. Half a century ago when Trinity College was founded to provide for the children of the Church religious teaching, influences and worship in accordance with her doctrines, there was no possible place which Trinity could occupy in the State system. By the Act which secularized King's College, and created the University of Toronto, religion was explicitly excluded from its pale. Now, happily, all this is changed. Religion is accorded a recognized place on the curriculum of the university. Ministers of religion may, and do, occupy important professorial posts, and no less than four of the affiliated colleges, which go to make up the University of Toronto system, are distinctively Christian foundations. Had such a state of things existed in Bishop Strachan's time, it is doubtful whether he would have sought for independent university powers for Trinity College. But he, and those who labored with him so zealously, worked wisely and well under the circumstances of their time. It is for us to work as wisely and as well under the changed conditions of our own time.

As our present Chancellor, Mr. Christopher Robinson, whose father was our first Chancellor, has well said, in speaking of the founders of Trinity: "Their main purpose, whatever strong language may have been used in a time of excitement and under a sense of what they regarded as plain injustice, was not to separate forever from the Provincial University, but to secure for their children the teachings of their Church in connection with university education, and having obtained this I cannot see why, while still retaining it, we should decline all co-operation with others interested in higher education, even in those branches where we can with advantage work together."

The principles, for the recognition of which by the State, churchmen contended in vain fifty years ago, and to maintain which they were forced to found Trinity as an independent university, are now acknowledged and affirmed by the constitution of the State University of the Province.

These facts, surely, are sufficient to sustain our contention that the causes which formerly existed to render the maintenance of Trinity as an independent university a practical necessity, exist no longer.



The foregoing considerations, with others, hardly less potent, which there is not now time to enumerate, seemed to the Corporation of the University of Trinity College, when they were fully considered by that body three years ago, to be conclusive in favor of the policy of federation. Accordingly, the corporation set themselves to the task of procuring suitable and honorable terms of federation, which would secure for our graduates and students the fullest protection in all their rights and privileges, and for our Church ample guarantees that the fundamental objects for which Trinity was founded, namely, religious teaching and influences in accordance with the Church of England, and the benefits of collegiate life and training, would be as safe and sure in federation as they have been under the conditions of the past. Such terms have now been practically agreed upon, and final steps are proposed looking to the carrying out of the policy adopted and declared three years ago. The hearty and undivided support of the great body of churchmen throughout Ontario, and of the many graduates and friends of Trinity, is all that is now needed to the carrying out of this policy with such complete success as to place Trinity in a stronger position on the new basis, as a residential Arts college in the University of Toronto system, than she could reasonably hope to occupy, if, under the changed conditions of to-day, she were to continue an independent university. This support the corporation earnestly bespeaks, and confidently expects.

#### TERMS OF FEDERATION.

The chief features of the terms of federation, which have been already published in full, may be briefly summarized as follows:

1. The freedom of Trinity College to provide for all her students religious instruction and influences, in accordance with the teachings of the Church of England, is fully recognized and amply safeguarded, and provision is made by a system of options to prevent such teaching falling as additional subjects upon the students of Trinity.

2. Trinity College will occupy an honorable position, on terms of equality with all other colleges in the federation, and will be placed in such a position that she can, without handicap, maintain a healthy rivalry with the two other Arts colleges, namely University College and Victoria College. The individuality of Trinity, and the special characteristics which have marked her training in the past, will thereby be preserved, and their influence extended.

3. The college subjects which are to be taught by Trinity for her own students at her own expense, are the following: Theology, Greek, Latin, ancient history, English, French, German, Oriental languages, and ethics. It is hoped that this list

of subjects may be enlarged in a few years' time, when Trinity's resources have become larger; but for the present they may be accepted as fairly satisfactory. The university subjects, which will be taught at the expense of the State for the students of all the colleges, have already been enumerated.

4. In order to avoid, on the one hand, the break with the past, and the financial loss, which would be involved in a removal from our present site and buildings, and on the other hand, the loss of time which would fall upon the students if there were much going and coming between the university buildings in the Queen's Park and Trinity College, arrangements have been made for the duplication in Trinity College of most of the lectures which her students will require, outside of lectures in scientific courses, which Trinity is not now providing, and concerning which we have therefore nothing to lose and everything to gain.

5. Provision for the staff and students of Trinity Medical College has been made by an amalgamation of the medical faculties of the two universities. It is confidently expected, by those who are best qualified to judge, that this amalgamated faculty, possessing as it does, exceptional ability, strength and efficiency for medical teaching, will render signal service to the entire medical profession of the Province, and will do much to advance the position of Toronto as a centre of medical education.

6. The rights and privileges of graduates and present students of Trinity are safeguarded by the provision that all our graduates and undergraduates, except those in theology, shall have and enjoy the same degrees, honors, and status in the University of Toronto as they previously held in Trinity University, and that all those who at the date of federation are proceeding to their first or higher degrees shall be allowed to proceed to the same within six years under the regulations in force at Trinity University at the time of their matriculation.

7. In all matters touching our theological work and status, the position of Trinity University will remain the same as heretofore.

8. It is proposed that the amalgamation of the medical faculties shall come into force, if possible, by 1st October, 1903, and that the complete federation of the two universities shall take effect one year later.

On behalf of the corporation,

T. C. S. MACKLEM.

J. A. WORRELL.

EDWARD MARTIN.

Toronto, 20th August, 1903.



## Reviews

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*Microscopy and Bacteriology.* A manual for students and practitioners. By P. E. ARCHINARD, A.M., M.D., and edited by V. C. PEDERSEN, A.M., M.D. Illustrated with seventy-four engravings. Published by Lea Brothers & Co., Philadelphia and New York.

It is the intention of the publishers to put on the market a series of epitomes of medical subjects. This book is a little over two hundred pages, is well gotten up, well indexed, arranged, printed and bound. It shows care in preparation, and a knowledge of the essentials of bacteriology. It cannot be excelled as a guide to students and practitioners. There is no padding. It contains all that is necessary for quick reference. It does not pretend to be a treatise on the subject, nor would it be so valuable to the student if it were. We learn generalities first and details last. The fault of many works on this subject is the lack of description of laboratory details. In this, great minuteness and care is shown in the preparation of that part dealing with technique. If the remaining numbers of the series are as well prepared as this one, they should have a good sale. It is strange that publishers such as Lea Brothers & Co. do not have Canadian representatives where such works might be readily obtained.

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*Syphilis in Dentistry.* By L. BLAKE BALDWIN, M.D., Chicago, Ill., and EZRA READ LARNED, M.D., Chicago, Ill. Published and for sale by E. H. Colgrave, 65 Randolph Street, Chicago.

This is a book of 117 pages, covering the main features of the disease, with several colored plates. It is difficult to collect and arrange the essentials of the disease for dentists from the very extensive literature on the subject. Those sections dealing with the history, bacteriology, and mode of infection are very interesting and instructive, but that part dealing with the manifestation of the disease do not seem to be sufficiently clear cut. The old classification of primary, secondary, and tertiary are religiously followed, although in the text it is admitted that both secondary and tertiary symptoms may be present at the same time. To the ordinary clinician and reader of such literature there does not seem to be any good purpose served by forcing a distinction between early and late manifestations of the disease. However, these are only minor matters, and do not in any way

detract from the sound teaching on this important disease. Every dentist should have a broader knowledge of syphilis than is contained in any of the dental text-books. He should be able to recognize the disease in any of its manifestations. It is not stated in this book just how a dentist should deal with a syphilitic patient; they must have treatment. The chapter on the relation of syphilis to pyorrhea is interesting, but not at all conclusive. It is much like the idea put forward that coffee drinking causes pyorrhea. It is hard to say whether the coffee, the syphilis, or excessive eating of meats is the cause. At all events the book under discussion will be welcomed by the dental profession, because it fills a place not occupied by any other work. The dentist who conscientiously reads this book will be stimulated to be more observant of oral conditions, and more careful of instruments in suspicious cases. Every such book should be carefully read; they all tend to broaden the dentist's view of his function in this world.



## Correspondence

### DENTAL STUDENTS IN BONDAGE.

To the Editor of DOMINION DENTAL JOURNAL:

DEAR SIR,—Since you invite further discussion of that part of our plan of dental education referred to as apprenticeship, bondage, servitude, etc., it may be well to review Schedule A, of By-law No. 6, of the Royal College of Dental Surgeons of Ontario, because it officially expresses, to some extent, our status as a body. It reveals the spirit in which we treat those who seek membership in that body, and it sets forth authoritatively the nature of dental education in such a light that the lawyer, the judge, the members of the Legislature, or anyone else who reads it, may conclude that dentistry is a trade learned chiefly by apprenticeship, in which the learners are ignominiously committed to servitude and bondage, and trained in some cases to peddle.

The schedule is before the world in print for the guidance of students, preceptors, and others, and stands as recorded evidence, so far as it goes, of the educational, ethical, and social status of the Ontario dentist. The "Articles of Agreement" here referred to are of the form approved of by the Board of Directors so late as 1897, and are probably better known to students and licentiates of this Province than any other part of the Dental Act or By-laws, and being authoritative, are a potent factor in establishing at the outset the conclusions of a dental student as to the character of his vocation. The evil effects of erroneous views at this time established in the mind of a student are so evident in his subsequent attitude towards study and practice that it becomes us to be careful about the tendency of our statutory language.

In these articles it is written: "The said party of the second part hath placed and by these presents *doth bind himself* to the said party of the first part to *serve him* as a student of dentistry. . . . And the said party of the second part *doth hereby covenant* with the said party of the first part that he will, during the whole of the said term of three and a half years, *faithfully and diligently serve* the said party of the first part as a student of dentistry, and *obey* all his reasonable commands *excepting* during such portion of the said three and a half years as he shall be *absent* attending lectures in the city of Toronto or during such holidays as shall be granted *by the party of the first part* . . . . And that he will not permit the said party of the second part to practise dentistry during the said term elsewhere than in his *head office*, unless under his own immediate personal

instruction and supervision." Elsewhere in the Act the words *apprenticeship* is expressly used.

It thus appears that apprenticeship, bondage, and servitude are not only contemplated, but expressly provided for in this the approved form of agreement. It also appears by the language quoted that the student is to serve even faithfully and diligently for the benefit of the licentiate, his master, whom he solemnly covenants to obey. What more could the Southern planter of fifty years ago have required of his black-skinned property, or any man now require of his horse or dog? Besides, we had supposed that the energies of a student should be devoted to the advancement of his own educational interests.

The student is compelled knowingly to sign these the articles of his own bondage, and cease for the term of three and one-half years to be a free man. Now, what is the moral influence of bondage and servitude on a young man who knowingly accepts the condition? Imagine an Alexander, a Shakespeare, a Lincoln, signing articles of his own bondage at the beginning of his career!

Next, the agreement implies that apprenticeship is the chief means of instruction, and the student's absence at lectures in Toronto is a merely incidental matter, treated as an exception in the words of the agreement.

Again, the condition of bondage is confirmed by allowing the preceptor, at his own discretion, to grant or not grant the student holidays.

Further, the mention of "head office," and the directions following are an official recognition of peddling as a part of dental practice, in which a preceptor may engage, the restriction being that the student must not peddle alone; or, in other words, his preceptor must accompany him on peddling trips to exercise "his own immediate personal instruction and supervision" in the peddling done by the student.

Finally, the whole tenor and complexion of Schedule A, and the apprenticeship plan to which it belongs, is objectionable, even intolerable. It has long outlived its fitness, useful though it may once have been, and with all due respect for the framers of the by-law, and the directors who since have ratified and approved it, I would point out its unfitness longer to remain in force. It is repugnant to the spirit of this age in matters of justice, liberty and dignity, contrary to our views of what dental education should be, and out of harmony with the aims and aspirations that tend to real professional advancement.

Besides all this, it is found to be a failure in the only respect in which it was ever expected to be a success, viz., as a means of clinical instruction for dental students. In this statement, I think, I express the view of not less than 90 per cent. of the competent teachers of dentistry on this continent.



Some of the evils arising from apprenticeship were pointed out in your June issue, and a remedy therefore suggested. Let us hope the suggestion may find favor in the eyes of the profession, and meet with such approval of directors that the board may be moved so to amend the by-laws that they shall cease to imply that dentistry is a trade. To repeal and abolish Schedule A, and all else that provides for apprenticeship, will be necessary, and to expunge the word apprenticeship and all words that sanction peddling and branch offices, will be expedient.

Let the amended legislation prescribe no servile or ignoble position for any student, nor such position as may expose him to the evil example and habits of any unprofessional dentist. And let no man be permitted to hold property in the person of a dental student for his own convenience or profit, or as a chattel to be transferred to someone else in bond. But such legislation should, nevertheless, prescribe the entire course for students and adequately provide that during this course they shall do nothing in the way of practice to the detriment of themselves or the public, or to the dishonor or annoyance of the dental profession, and this I take to be a sufficient though modest requirement.

Now, Mr. Editor, I trust the foregoing may serve a useful purpose in promoting a serious consideration of the matter under discussion by all men jealous for the welfare of our profession. We are confronted by a condition due somewhat to the adversities which beset the early practice and teaching of a new calling, and also to the adoption of erroneous theories in regard to the nature of this calling, and the function of those who follow it. To better this condition we must before all other things have done with apprenticeship. Whoever, therefore, has any clear scientific ideas useful in preparing the way to this would do well to now express them. And in this connection it is desirable that someone competent to do it should carefully point out the distinction between a learned profession and a trade, so that the essential principles of difference between professional practice and the work of the artizan, mechanic, or shop keeper shall be made clearly to appear; such article to be published in the Journal for the benefit of those to whom this distinction is now vague or unknown, and to the end that none thereafter may err through ignorance of it in argument or practice. A brief essay answering this requirement would be of more than local utility and highly interesting as a novelty in dental literature.

Yours truly,

W. C. GOWAN.

## Obituary

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### WILLIAM C. BARRETT, M.D., D.D.S.

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Word was received in Buffalo this morning of the death of Dr. William Cary Barrett, dean of the dental department of the University of Buffalo, in Nauheim, Germany, on August 22nd last. Dr. Barrett went to Nauheim to take baths on account of heart trouble, with which he became afflicted about a year ago. He was accompanied by Mrs. Barrett, who is now on her way home to Buffalo with the body.

The news of Dr. Barrett's death will be a great shock to the countless friends that he had in the medical and dental professions, but it will not come exactly as a surprise to them. When Dr. Barrett went away about two months ago his health was poorer than it had been in years, and his friends hoped that the baths would help him, although his condition was so poor that many prepared themselves for the worst.

Dr. Barrett was a son of Rev. William and Hannah Cheney (Tanner) Barrett, and was born on May 13th, 1834, in Monroe County, this state. He was therefore in his seventieth year.

After a thorough academic education at Kingsville Academy, Ohio, Carey Seminary, N.Y., and Yates Academy, N.Y., for some years he was teacher in different literary institutions in the State of New York. In 1863 he began the study of medicine, but in 1864 he changed to that of dentistry, receiving the degree of master of dental surgery in 1869. He began dental practice in the village of Warsaw, Wyoming County, N.Y., and remained there until the spring of 1876, when he moved to Buffalo, and in 1887 again took up the study of medicine in the medical department of the University of Buffalo, graduating with the degree of M.D. in 1880. He also attended lectures in the Pennsylvania College of Dental Surgery, in Philadelphia, and graduated with the degree of doctor of dental surgery in 1881.

After that time he was in the practice of his profession in the city of Buffalo. In 1885 he received the appointment of lecturer of oral pathology in the medical department of the University of Buffalo, his alma mater, and in 1890 was elected to the full professorship. In 1889 he was elected professor of morbid anatomy and pathology in the Chicago College of Dental Surgery, the dental department of Lake Forest University, the largest dental college in the west, and accepted after due consideration, but still continuing to maintain his residence in Buffalo. After that appointment he visited Chicago regularly for the purpose of delivering his lectures and giving instruction belonging to his chair.



Upon the organization of the dental department of the University of Buffalo, in 1891, Dr. Barrett was appointed professor of the principles and practice of dentistry and dental pathology, and was elected dean of the faculty, which position he held at the time of his death. He was also one of the staff of the Buffalo General Hospital, holding the position of oral surgeon in that institution.

From 1882-88 he was the editor of the *Independent Practitioner*, devoted to dental medicine and surgery. In 1888, it was sold, and the editor retired from journalism, but in 1891 he again entered the field as editor of the *Dental Practitioner* of Buffalo, and he held that position at the time of his death. Dr. Barrett made notable collections in comparative dental anatomy, and was the author of many monographs bearing upon the subject of dental medicine.

Dr. Barrett was a member of the Medical Society of the County of Erie, of the Buffalo Medical and Surgical Association, of the American Medical Association. He was a member of the International Medical Congress which met in London in 1881; an honorary vice-president of the International Medical Congress, Washington, 1887; and of the congress of 1890, which met in Berlin. He was president of the Dental Society of the State of New York in 1875 and 1876, and of the American Dental Association in 1886. He was a member of the American Microscopical Society and honorary member of many state and foreign professional associations. Dr. Barrett was a member of the Masonic fraternity, belonging to Queen City Lodge, F. & A. M., and was a Knight Templar. He was also a musician, and was at one time in charge of Asbury Church choir.

Professor Barrett had travelled in nearly all the countries of Europe, having crossed the ocean repeatedly for that purpose. He studied in various hospitals there, and made many additions to his pathological collection while so engaged, some of which are almost or quite unique. He was married in 1857, to Amelia Harris Ryerse, of Port Ryerse, Ont., who survives him. The couple had no children.—*Buffalo Commercial*.

# Directory of Official and Voluntary Dental Associations and Societies of Canada

## OFFICIAL

### NOVA SCOTIA DENTAL BOARD.

President—Hibbert Woodbury, D.D.S., Halifax, N.S.  
Secretary—Geo. K. Thomson, D.D.S., Halifax, N.S.

### PRINCE EDWARD ISLAND.

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Secretary—Dr. J. H. Ayers, Charlottetown, P.E.I.

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Secretary—J. B. Willmott, D.D.S., 96 College Street,  
Toronto, Ont.

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## VOLUNTARY

### CANADIAN DENTAL ASSOCIATION.

President—J. B. Willmott, D.D.S., 96 College Street,  
Toronto, Ont.  
Secretary—W. Cecil Trotter, B.A., D.D.S., 412 Bloor  
Street West, Toronto, Ont.

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President—J. Mills, D.D.S., Brantford, Ont.  
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### TORONTO DENTAL SOCIETY.

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Arcade, Toronto, Ont.

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Montreal, Que.  
Secretary—A. Scott Ives, D.D.S., St. Catherine Street,  
Montreal, Que.

The above is a correct list of the dental organizations of Canada, with Presidents and Secretaries, so far as they are known to the Journal. It is the intention to keep a list of the officers of all Canadian societies in the Journal, so where there are omissions or errors please notify the Editor, who will make the correction, and as far as possible keep a corrected list, which will be of great value to the organizations.



# Dominion Dental Journal

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A. E. WEBSTER, M.D., D.D.S., L.D.S. - - - - TORONTO, CAN.

93 COLLEGE STREET

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No. 9.

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## DEATH OF DR. W. C. BARRETT.

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In another part of this issue appears an obituary of Dr. Barrett, of Buffalo, taken from the *Buffalo Commercial*. With the exception of Dr. C. N. Johnson, of Chicago, Dr. Barrett was better known to the dentists of Canada, and especially of Ontario, than any other dentist of the United States. His first visit to the Ontario Dental Society was about the year 1885, and since that time he has been a frequent, and always welcome, visitor at professional meetings of Ontario dentists. In the death of Dr. Barrett, the profession has lost one of its leaders in education, and a strong advocate of broad, liberal principles. His loss will be much felt in all national and international gatherings. The department in the University of Buffalo, of which he was dean, will miss him most.

## RESIGNATION OF THE DENTAL BOARD OF SOUTH AUSTRALIA.

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Only a few months ago the Legislature of the State of South Australia passed a Dental Act, and appointed a Dental Board. It was provided in the Act that all those who had been in practice in the state for some months prior to the passing of the Act should have their names placed on the dental register and given a license to practise. As always occurs in such cases, there were a great number of applicants who had not really been in practice at all. The difficulties always arise from a clear definition of what "in practice" means. The Board of South Australia refused to register an applicant because he had been a druggist's assistant who extracted teeth for his employer and paid the money over to him. It was not shown that he did more than extract and take impressions. In the opinion of the Board this was not in "dental practice" within the meaning of the Act, and they refused to grant a license. The applicant brought the case before a judge, who directed the Board to issue a license, which they refused to do, and immediately handed their resignations to the Governor in Council. The Legislature is up against the difficulty of getting legally qualified dentists to act on the Board until they settle the question of the order of the judge.

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## A SUBJECT FOR GOVERNMENT ACTION.

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To the three international dental congresses which have been held, Canada as a country did not exist. The Fourth International Dental Congress, which will be held in St. Louis, August 29th to September 3rd, 1904, has made provision for the official representation of Canada at that great meeting. It will be without doubt the largest congress of dentists ever held. Every country will be represented. The best known to the profession will appear. Canada cannot afford, on this her first official appearance at an international congress, to allow anything but her best efforts appear.

Dr. H. R. Abbott, London, President of the Board of Directors of the Royal College of Dental Surgeons of Ontario, has



been asked to accept the position of chairman of the Canadian committee to see that Canada is efficiently represented at the Congress. Dr. J. B. Willmott, Dean of the Royal College of Dental Surgeons, has been appointed as vice-president, on the request of the National Federation of Education, by the Executive Committee of the Canadian Dental Association to represent Canadian dental education on that body at its meeting in St. Louis.

Since the dental profession of Canada has been officially noticed by foreign countries, the Canadian Government should take notice of the compliment paid to Canada, and send an official government representation to the meeting. Other countries which are not in so much need of recognition do it. At such congresses the official government representatives are expected to make speeches for their countries on organization day, and at all banquets and official occasions. The dental profession should decide upon a man who would fill such a position with credit to his country, and then make an effort to have the Dominion Government appoint him. Such an official representative would do more for Canada before the educated world than ten immigration agents in Russia to induce Doukhobours to come to this country.

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### WHAT COLLEGE SHALL THE CANADIAN DENTAL STUDENT ATTEND?

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Next month dental colleges begin their year's work, students must soon make up their minds whether they will attend this year or not. A choice of college must be made. All dental colleges in America, which are deemed reputable, belong to the National Faculties' Association, and with the present term begin a four years' course, and presumably are more or less of the same standard. There are better faculties and equipments in some colleges than in others, but all must live up to a minimum standard of time and curriculum, or resign membership. This, Harvard Dental College did at the last meeting of the National Faculties meeting, claiming that four years were not necessary in their institution to acquire a dental education. The Canadian dental colleges open this year with a four years' session. The new curriculum, as presented by the Royal College of Dental Surgeons, Toronto, Ontario, is as complete and broad

in scope, as years of experience in the education and requirements of a dentist could devise. There is no department of dental education in which provision has not been made for a thorough course. Below is the syllabus as presented:

#### FIRST YEAR.

Lectures.—Histology, Bacteriology, Comparative Dental Anatomy, Metallurgy, Physics, Materia Medica, Operative and Prosthetic Technic; commence Anatomy.

Laboratories.—Histology, Operative and Prosthetic Technic.

#### SECOND YEAR.

Lectures.—Therapeutics, Orthodontia, Crown and Bridge Work, complete Anatomy; commence Dental Pathology, Operative and Prosthetic Dentistry and Chemistry.

Laboratories.—Practical Anatomy, Operative and Prosthetic Technic, Crown and Bridge Work Technic, Orthodontia Technic.

#### THIRD YEAR.

Lectures.—Electro-Therapeutics; complete Operative and Prosthetic Dentistry and Dental Pathology and Chemistry; commence Physiology, Medicine, and Surgery and General Pathology.

Laboratories.—Infirmary, Operative, Prosthetic, Orthodontia, Crown and Bridge Work, Chemistry, Bacteriology, Pathology, Porcelain Technic.

#### FOURTH YEAR.

Lectures.—Jurisprudence, Physical Diagnosis and Anesthesia, Practice of Medicine, Institutes of Dentistry; complete Physiology, Medicine and Surgery and General Pathology.

Laboratories.—Infirmary, Operative, Prosthetic, Orthodontia, Crown and Bridge Work, Porcelain Work, Chemical Metallurgy, Clinical Medicine and Surgery at the General Hospital.

An attractive feature of the Dental College in Toronto is its affiliation with Toronto University, which grants degrees in dentistry. The sports, the gymnasium, the social clubs, the libraries, and students' associations are all at the will of the dental student. The dental student has all the distinction that goes with college and university student life. The dental college itself is solidly built, and laid out for the convenience and comfort of the students, well heated, well ventilated, and kept clean, so that the conditions surrounding the student will make him feel that he is being treated as a gentleman.

Last year a large addition was made to the main building,



and this year the contracts have been let to equip in accordance with the most up-to-date ideas, a bacteriological, histological, and pathological laboratory.

Students who enter this college with a desire to obtain a degree in dentistry from Toronto University, and a license to practise in Ontario, must present a certificate of having passed the junior leaving examination, with the Latin option of the Education Department of Ontario, or a certificate of having matriculated in the Department of Arts in any Canadian or foreign university.

Students who have not the above credentials may attend college as occasional students, and will be given certificates of attendance, and for examinations passed, which will be acknowledged and given full credit for by any dental college which is a member of the Faculties Association. Thus a non-matriculant student may attend college in Toronto for three years, and then transfer to any college he wishes to attend in the United States to complete his course provided he has a matriculation standing in that college. It must be understood, of course, that the matriculation standard acknowledged by the Faculties Association is much lower than that of Ontario.

Students who have not an Ontario Education Department junior leaving, or a university matriculation in Arts certificate, may pass Trinity University dental matriculation examination, or present that university with a dental matriculation from any province in Canada, and it will be accepted, and he will be allowed to proceed toward a degree of D.D.S. of Trinity. Also any licentiate of any part of the British Empire may receive the degree of D.D.S. without attendance on lectures if he pass the examination of this university. The examinations are planned to conform with the teaching of the Royal College of Dental Surgeons. For further information, write R. J. Reade, M.A., corner of Yonge and Bloor, Toronto, Ontario. Any information desired concerning the Royal College of Dental Surgeons will be gladly given by the secretary, Dr. J. B. Willmott, 96 College Street, Toronto, Ontario.

The one cherished desire of the Board of Directors of the R.C.D.S. has always been to equip and maintain the most complete dental educational institution possible. This ideal has been attained, and it only now remains for the dental profession of Canada to appreciate and support an institution which has no dividends to pay, but must spend all its income for the students' benefit.

### Editorial Notes

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DR. and Mrs. W. E. Willmott have returned from a trip abroad.

DR. C. J. WATT, Stirling, Ont., R.C.D.S., 1903, was recently married.

THE religions of the world are the ejaculations of a few imaginative men.

THE wife of Dr. Davidson, Woodstock, died of tuberculosis, August 17th, 1903.

MORAL qualities rule the world, but at short distances the senses are despotic.

GLAD to notice that Dr. Kilmer has won the club championship of the St. Catharines Golf Club.

DR. GEO. GOW, Toronto, and Dr. Bert Kenward, Watford, spent July in the West. Both took to the ways of the country quite naturally.

WE regret having published an article by Dr. J. B. Willmott in the August issue which by right should have appeared in the *Western Dental Journal* first.

DR. J. W. HAGEY, of the '98 class, is now practising in Red Deer, Alberta, and was lately elected Vice-President of the Dental Board of the North-West Territories for the year 1903-1904.

DR. W. D. MOORE, who was a demonstrator in the Royal College of Dental Surgeons during the session 1902-3, and Dr. K. C. Campbell, who was a demonstrator 1901-2, have been appointed members of the staff of the Chicago College of Dental Surgery, Chicago. We congratulate the Chicago College upon obtaining the services of two exceptionally competent demonstrators. Good, honest, clean, capable men are wanted everywhere. These young men have shown themselves to be gentlemen of the highest type, and deserve the best the land can provide. The R.C.D.S. feels a just pride in her sons.

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### ASSISTANT WANTED.

A competent laboratory man, or preferably an Ontario graduate. Apply, stating salary and references, DOMINION DENTAL JOURNAL, 44 Adelaide Street West, Toronto.



# Dominion Dental Journal

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## Original Communications

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### OLD FOES WITH NEW FACES.

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BY D. V. BEACOCK, D.D.S., BROCKVILLE, ONT.

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There is always some medical dogma in fashion, and it may last from twenty to fifty years, and is then replaced by another, which is sometimes new and sometimes an old one dressed up in a new suit of clothes. At the present time "germs are the fashion."

In the seventeenth century Leuwenhoek described bacteria, and it is not very wonderful that individuals of a rationalistic rather than a philosophic turn of mind should frame the hypothesis that these organisms were the specific agencies producing the respective forms of disease. The discoveries of Leuwenhoek were further elaborated, and theories were deduced, more or less plausible, and likewise fanciful, as well as bewildering, and for more than half a century there was a school of pathologists teaching that these infinitesimal parasites created the various maladies. And bear in mind, it was then, as now, the rankest kind of infidelity to even doubt it. Then came a reaction, the ridiculous dogma was banished from the lecture-room. And we now see history again repeating itself. The new apostles of the germ-theory have brought to the christening font a considerable number of new germ-babies—for instance, a vibro for disorders of the nostrils, a leptotrix for the teeth, a bacillus for diphtheria a spirillum for tubercular disease, a cryptococcus or some other -cus for yellow fever, another for scarlet fever another for influenza, and still another for smallpox. Indeed, it would really appear as if the germ-theory was only a mirrored reflection of the more ancient doctrine of possession by evil spirits of Biblical times in a liliputian form.

History tells us that there was a time when all diseases were supposed to be caused by evil spirits. When a person became sick, it was taken at once to be a case of obsession; one or more evil spirits were supposed to have taken possession of the victim. At first, in all these cases, they had recourse to priests. Thus we learn that the first medicine men were ecclesiastics, and their treatment consisted solely of charms, prayers, or incantations, coupled, of course, with some rich offerings to the gods. The Old Testament attributes such diseases as the leprosy of Miriam and Uzziah, the boils and hemorrhoids of Job, the dysentery of Jehoram, the withered hand of Jeroboam, the fatal illness of Asa, and many other ills to the wrath of God or the malice of his satanic majesty.

Luther, as is well known, ascribed his own disease to devil-spells, declaring that Satan produces all the maladies which afflict mankind, for he is the prince of darkness and death, that he poisons the very air we breathe, etc., but no maladies come from God. So we see down to the Reformation there was no change in the theory of medicine from fetichism. In all times, and even now among savages, when very bad spirits are supposed to be in possession of any one of their number, they fight them out with foul odors or abominable doses, just as we do with our scientific and odoriferous disinfectants and germicides.

As in former times, the popular belief was that diseases of which the cause was not known were all induced by evil spirits, or by unholy individuals with extraordinary powers, so now the quite analogous notion is most assiduously disseminated that they are the work of animalcula and schizomycetes, every type of disease having its own specific excitant. The offender is described as being so small as to be entirely invisible, except perhaps with the aid of the most powerful microscope, and so universally diffused as to be encountered everywhere, but always imperceptible to the senses. These organisms are declared to live in the purest atmosphere, as well as in the most contaminated, and upon the highest and most inaccessible mountains, as well as where men and animals do congregate.

It is said that myriads of these little organisms enter our bodies at each and every breath without doing us the least injury. They are simply scavengers; their legitimate work is to help clean out the sewers of our bodies, for wherever there is decay or decomposing matter these life-preservers are busily engaged in their business of neutralization, sanitation and purification. They feast upon the effete and decaying animal and vegetable matter; they never injure the healthy, but are natural friends of the diseased tissues; they are, in fact, nature's physi-



cians, and are constantly employed in preventing decomposing and worn-out matter from clogging the machinery of the animal organism. The mouth, throat and stomach, intestines and lungs, are inhabited by millions of these little sanitarians; they are the natural benefactors and helpers to an important end.

The great majority of bacteria are benign, their greatest work being for good in the world's economy, acting the part of scavengers, they simply return the elements of organization back to their original source with renewed activities for newer and higher combinations.

Every man among us lives by changes wrought in the chemical constitution of his environment. Each one of us is daily and constantly producing changes in quantities of chemical compounds, known as food material, and continually giving it back to the material world in chemical forms completely changed. The dreadful microbe is doing no more or no less. Bacteria are necessary as well as being useful, for without them our farmers and gardeners would have little better than a desert or barren waste to till. Even our digestion is to a large extent dependent on the family of benign germs, and millions occupy every portion of our living body, no doubt for a beneficent purpose, although we may not realize it. Food that is so thoroughly sterilized as to be absolutely free from micro-organisms will pass through the alimentary canal undigested, and, paradoxical as it may seem, it is nevertheless true that these germs are **physiological**, and not **pathological**. But as all good things may **become** bad, so may the former be converted into the latter by their **environment**. And what may appear strange, the very pus that some of these **pyogenic** micro-organisms elaborate may have a beneficial purpose, as a remedial process, such as granulation, etc., and very frequently **takes** the place of far more morbid processes. It may also afford a **mechanical** means of removing foreign bodies, *e.g.*, thorns, splinters, bits of broken glass, from soft parts into which they may have been driven, and likewise in the formation of abscesses, may sometimes serve to eliminate morbid matter from any part of the system. All **nature** moves in a continuous change of cycles. Grass and herbs spring from the earth, air and water; herbivorous animals live and thrive on these, thus changing the constituents into other forms of food. These, again, are eaten by man and animal, and are again changed into other forms, to be again transformed into other material, thus making food for microbes and finally returned to the earth from which they formerly originated. Thus we see the whole animal world may be said to be preying on each other; even one set of microbes are destroyed and eaten

by others (*Phagocytism*), so that Dean Swift's couplet is quite applicable:

"The very fleas that do us tease  
Have lesser fleas to bite them,  
And these again have lesser fleas,  
And so *ad infinitum*."

Experimenters have succeeded in separating the various micro-organisms from the medium in which they subsisted and inoculated healthy persons with them, without thereby inducing disease; while, on the other hand, others were inoculated with the virus in which there were no microbes, and diseases were the result. The actual fact seems to be that the malady and disorganization are first, and the micro-organism afterwards. And this is in analogy to other facts observed in the world of nature. If a tree falls in the forest and begins to decay, there appears a multitude of creatures in great variety to devour it out of the way. So, too, when an animal dies, all manner of repulsive things will soon congregate about it, as their prey, yet we never reason upon the matter like the typical Irishman, when viewing a decaying carcass: "Look at the poor creature, and the maggots," cried he; "sure they have killed it entirely!"

Let us take, for instance, the behaviour of Loeffler's diphtheric bacillus; it does not fulfil any of the conditions which have been laid down by leading scientists as essential to the character of a specific bacillus. In the first place, it is not uncommonly absent altogether from the disease, of which it is supposed to be the sole originator. Loeffler himself found it entirely absent in over 25 per cent. of the cases, which had been diagnosed as diphtheria, but it is always very easy to shuffle out of that difficulty when a scientist has a theory to maintain, despite the signs and symptoms and results, "Probably it could not have been diphtheria." But, unfortunately, other close observers besides Loeffler, the discoverer, have failed in a much larger percentage of cases to discover this wonderful bacillus in well authenticated instances of diphtheria.

There is also another difficulty; this same bacillus has been found in hundreds of well authenticated instances by numerous scientific observers in healthy and even unhealthy throats, such as persons recovering from scarlet fever, without any diphtheria resulting. And yet it is claimed as one of the most important conditions of a specific bacillus that it must never be found apart from the disease it originates, much less in a healthy individual. Moreover, if a bacillus be a specific organism, it is laid down as an axiom, that when a pure culture is injected into an animal body it must reproduce in that animal an identical disease to that



which had obtained in man; but, alas, for this scientific theory, the diphtheria experimentally produced in guinea-pigs, as well as other animals, is found to bear no resemblance to the diphtheria in the human species.

At a meeting of the British Medical Association, Dr. Geo. Wilson, in his presidential address, began by saying with great frankness that "Pasteur's prophylactic inoculations are based on errors, and are the outcome of illogical inductions—everyone of them." He said that the few pathogenic microbes which bacteriologists have discovered associated with human disease, and which they can isolate and cultivate, are those of tuberculosis, diphtheria, enteric fever, cholera, and plague, etc., "but all these," continued Dr. Wilson, "are found associated with necrosed tissues, and it is certainly open to argument whether, instead of being labelled the unconditioned cause of those respective diseases, they may not be performing a benign function in changing the necrosed tissues into harmless products, just as various kind of micro-organisms are necessary to change filth, and, in fact, all dead matter into harmless products." Pasteur's protective inoculations against anthrax, from a practical standpoint, are not only valueless, but positively dangerous, both to man and beast, and the Hungarian Commission recommended its Government to prohibit the use of Pasteur's vaccines and lymphs. And the German and English observers viewed them with no great favor. Dr. Colin and Dr. Lutaud, both of Paris, condemn them, as well as Prof. Koch. It is stated that out of the large numbers who went to visit the Pasteur Institute, after been bitten by so-called rabid animals, several died, many were injured for life, and not one was really cured, and we rarely or never now hear of that celebrated hydrophobia cure. It was nearly as bad as the vaccination fraud, and several others belonging to the much vaunted serum-therapy class of preventatives or prophylactics.

Just think that during the last few years the public have been favored with a score of different medical saviours, all claiming the discovery of infallible lymphs or serums for the prevention of contagious diseases.

The converts of Pasteur will insist on pumping us full of hydrophobia virus; the poor dupes of Koch will persist in petitioning for the compulsory injection of abstersive consumption serums. While the advocates of old Lady Montague and Ned Jenner will persist in poisoning the healthy blood of our helpless school children with pure calf-rot, thus spreading small-pox, consumption, scarlet fever, diphtheria and lock-jaw all over the land, and then wonder why it is we are cursed with so many

epidemics. Now, a Spanish doctor heralds the discovery of a yellow fever serum. There are influenza lymphs, bubonic-plague serums, diphtheria antidotes and elixirs for the prevention of senile decrepitude; if these continue to increase, life will be too short for the maturation of all the wonderful and different kinds of blood microbes; and the hide of a law-abiding citizen will be scarred like the bark of a pine-tree, in a North Carolina turpentine camp.

"So prone are mortals to their own damnation, it seems as if a devil's work was gone."

We are also told that cancer lurks in the deadly tomato; diphtheria in the mother's kiss; Americanitis and appendicitis everywhere; if things go on we shall soon have to take to the woods and then the bugs will be after us. Microbes, bacilli and bacteria, with all their sisters, cousins and aunts, have taken possession of the air we breathe and the very water we drink, and are constantly holding high carnival in our bodies, and have even attacked our money, consequently we are gravely told that it is not safe to handle till it has been placed under the care of a physician, or the sanitary inspector for disinfection.

It's bugs, bugs, and humbugs, whichever way you turn. We ought to enter a protest and pass a vote of censure against the energetic activity of these scientific (?) germ discoverers.

And now, gentlemen, I ask what are these awful death-dealing monsters? Simply nature's little scavengers; nothing more. Wherever in nature you find anything decaying too rapidly to be otherwise disposed of, there will you find these sanitary laborers—wolves, jackals, swine, vultures, carrion crows, buzzards, and so on, down to the worm and microscopic bacteria. And when the body is rapidly wasted by force, too rapidly for the refuse to be otherwise disposed of through the ordinary channels, forth come these merciful little agents to assist in the good work of purification. In the face of all this, what do our so-called scientists do? Why, they place them under arrest for assault with intent to kill. You see they mistake the collie who guards the flock for the wolf who would destroy it; they actually look upon life's highest activities as a very dance of death.

The real fact of the matter is this, that a pathogenic microbe entering a healthy human body, whether by accident or with malice propense, stands about as good a chance of doing harm as a mouse in a room, surrounded by a dozen cats. The body in health is amply safeguarded by means of its various germicidal fluids, as saliva, gastric and intestinal juices, etc., and even the blood itself peopled, as it is, with myriads of phago-



cytes, always abundant, and everywhere on guard against invasion by any intruders.

Since the above was written, I have read that excellent article of Dr. Kirk's, on "The Study of Metabolism," in *Dental Cosmos*, July, 1903, and quote the following extracts from pages 522, 523, 525, 526. Dr. Kirk says:

"The effects produced upon ancient ideas of pathology by the discovery of the relation of bacteria to disease causation was revolutionary, and the advances made in our conceptions of etiology with the corresponding readjustment of therapeutics in harmony therewith, has constituted, perhaps, the most important epoch in medical science. There are, however, evidences that the advance guard of medical research is shifting its ground somewhat for a new point of attack upon the problem of disease causation.

"The new field of research that confronts us is not a question of how bacteria cause disease, but why, in certain instances, they do not. In other words, the problems of immunity and susceptibility—those conditions of the bodily organism which determine whether disease invasion can or cannot take place, these are the burning problems which biological research is now concerned with.

"We have so long been accustomed to the formula, 'Bacteria cause disease,' that we actually overlook the equally important qualifying fact that they cause disease only when the internal resistive forces of nature or organism are so lowered as to be unequal to the task of preventing the bacterial invasion. The magnificent proportions which the bacterial factor in disease causation has assumed in the minds of bacterial pathologists have tended to overshadow and obscure the factor of vital resistance.

"In these two factors—tissue starvation and auto-intoxication—which seem sufficient to account for the lowered vital tone, which renders the individual vulnerable to the invasion of those disease-producing bacteria, which under conditions of normal nutrition, would be, and as a matter of fact are, for the most part harmless."

Disease is not caused by bugs or microbes; it is not, as is generally supposed, a thing or substantial entity to be driven out of the system by prayers, charms, incantations, or even by nauseous or poisonous drugs; on the contrary, it is simply a state or condition, and as such requires to be treated with a little common-sense, by aiding nature to throw off or expel the poison or waste matter that has been allowed to accumulate in the system. And just here let me state that the body is a com-

plete laboratory of poisons, and one of the most interesting facts lately brought out in this connection, is that the organism may be poisoned by the products of its own manufacture. This autoinfection, as it is sometimes called, was the subject of a paper, read in Washington before the medical society some time ago. In the normal process of digestion of ordinary foods, there are formed at certain stages products which, if thrown into the blood-current, will produce alarming symptoms and even death. Now let us suppose that a portion of the digestive machinery, whose function it is in some way or other to dispose of such toxic product, be unable to perform its task and this toxin becomes absorbed, and that these poisons are present in greater quantities than can be disposed of, then the system will be infected, and we are auto-genetically intoxicated, or in other words, self-poisoned. From this it becomes a scientific fact that we are continually on the brink of destruction by reason of natural processes. Now the question may very naturally be asked, then, why do we not succumb? The reasons lie with the excretory organs, and with the liver. This much abused organ has been found not only to separate from the blood very many poisons, but to actually destroy some. From this we learn that health is the best germicide. For when the human system is invaded by malevolent bacteria and microbes, the benignant living cells within us soon overcome and expel them, and save us from disease. They always act thus whenever the sum-total of our vitality—or voltage, so to speak—is such as to evidence the fact that they are in fit and forceful condition. If, on other hand, they are not properly fed with those elements, which are needful for their healthy sustenance and welfare, they soon run down, and we ourselves soon become well aware of the same fact that we are run down, that our voltage is below the normal; we are below par. We are then in a condition to become the prey of those ceaseless microscopic so-called enemies, which are ever ready to pounce upon the unfit to help clean them up or out.

If our corpuscles are weaker than the invading foes, no drugs on earth can save us; we are doomed, for beyond the supply of direct or indirect nutrition, human skill is absolutely powerless to add one single nerve-throb or heart-beat to the vital stock of any living organism. There is no substance in the universe; call it what you will—medicine, mystery, or moonshine—which can be made to add a single moment to the life, or a single jot or tittle to the strength of any organized being.

Bacteriology at the present time so dominates the public press that we seem to be living in a bacillus-stricken or microphobian world. The advocates of serum-therapy, preventive



medicine, and the murderous scalpel, seem to have gone mad. Why, you need only look at all our medical journals—Matthew, Mark, Luke, and John—and all the rest of them; what, I ask, are their contributors doing? When they are not giving their patients some combination of virulent poisons at one end or the other, or through the skin, are cutting out a woman's uterus or appendages or her husband's appendix. Has it ever occurred to you that it has taken ages of medical progress to even find out that the male of the human species had an organ that was almost as much of a nuisance as a womb or ovaries. And I have seen it lately claimed by some scientist I would call him a sciolist, that the innocent little appendix, being a superfluous, and functionless organ (*a claim that is far from being correct*) should be removed as a routine measure in prophylaxis in every child at the earliest practical age! So that you see, in time, we may be blessed, or rather cursed, with free appendectomy, as we are now with free vaccination, for the poor at least.

Now, if these fads go on, where is it going to end? Prof. Boeck, of Christiania, travelling in Italy, had his attention drawn to the fact of syphilization, and has since become the great authority on this subject; claiming from his practical results that it gives both remedy and immunity from infection. And strange to say, that most surgeons concede the general correctness of his views, but the idea is so outrageously offensive that it is not very likely to be put into general practice. But why not? It is serum-therapy, pure and simple and belongs to our present boasted age of scientific preventive medicine, and if it is right to use one, why not the other kind of cultured microbes, with their vile products and ptomaines?

We learn from the Bible in olden times that a great deal of mutilization was practised, but only on males; but we, in our wisdom, have greatly improved on this, for we not only occasionally trim the membrane prepuce, according to the orthodox Jewish custom, but practise asexualization of the female portion of our species. Who knows but the world may yet have to be populated after the plan of a colony of *apis mellifica*, where all the workers are neuters, except a few drones, and one queen, the mother of all. The world seems to be tending that way. I wonder if the celebrated Milton had a prophetic vision of this when he wrote the following verse:

“Oh, why did God,  
 Creator wise, that peopled highest heaven  
 With spirits masculine, create at last  
 This novelty on earth, this fair defect  
 Of nature?—And not fill the earth at once  
 With men and angels, without feminine?  
 Or find some other way to generate mankind.”

The Americans are closely emulating the French. Zola tells us that no less than half a million women in France are asexualized, and no less than three or four thousand annually undergo that unnatural operation. And a celebrated New York specialist stated that he had last year removed over a barrel of ovaries.

And I read in a medical journal that a physician from Michigan, who had been attending a post-graduate course on laporotomy in New York, who made this remark, "I would rather keep a powder-house in the region of everlasting fire, than be a woman with ovaries in New York City."

"I am somethin' of a veteran, jest a turnin' eighty year—  
 A man that's hale and hearty an' a stranger tew all fear;  
 But I've heard some news this mornin' that has made my old head spin,  
 An' I'm goin' to ease my conshuns if I never speak agin.  
 I have lived my fourscore years of life, an' never till to-day  
 Wuz I taken for a jackass or an ignorant kind of jay.  
 Tew be stuffed with such darned nonsense 'bout them crawlin' bugs and worms,  
 That's a-killin' human bein's with their microscopic germs.  
 They say there's microbes all about a-lookin' for their prey,  
 There's nothin' pure to eat or drink, an' no safe place tew stay;  
 There's miasmy in the dewfall, an' malarly in the sun,  
 Tain't safe to be outdoors at noon or when the day is done;  
 There's bacterly in the water, an' trikeenly in the meat,  
 Ameeby in the atmosphere, calory in the heat;  
 There's corpussels an' pigments in a human bein's blood,  
 An' every other kind of thing, existing since the flood.  
 Terbaccer full of nickerteen, whatever that may be—  
 An' yer mouth'll get all puckered by the tannin in the tea.  
 The butter's olymargereen, it never saw a cow;  
 An' things is gittin' wus an' wus from what they be just now.  
 Them bugs is all about us jest awaitin' fer a chance  
 Tew navigat our vitals and tew naw us off like plants.  
 There's men that spend a lifetime huntin' worms just like a goose,  
 An' tackin' Latin names to 'em an' lettin' on 'em loose.  
 Now I don't believe sech nonsense, an' I'm not agoin' to try  
 If things have come to sech a pass I'm satisfied to die.  
 I'll go hang me in the sullen, fer I won't be sech a fool  
 As to wait until I'm pizenized by an annymalycoll."

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## DENTAL ASSISTANTS.

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BY H. WOODBURY, D.D.S., HALIFAX.

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Perhaps in the minds of many of us there has come the wish that we could avail ourselves of the services of some one trained and authorized to act as an assistant in many of the minor services, where the practitioner under the present circumstances is compelled to give his personal time and attention. This matter has taken more definite shape in my mind since reading the article by Dr. M. L. Rhein, published in the *Dental Cosmos*,



and read by him before the New York State Dental Society. The title of his paper is "The Trained Dental Nurse." I see in a foot-note that a bill has passed the New York Legislature legalizing the position of dental nurses. With what light I have upon the matter, I do not agree in some particulars with Dr. Rhein. However, I shall take the liberty of quoting from him. Without further delay I will present a plan, and divide it under different heads:

1. *The Desirability of Having Trained Assistance.*—Just as much as the detail work of a medical practice is at the present day in the hands of the trained nurse, so it seems to me the dentist could be helped in his field of work if qualified women could be employed at least in dental offices.

2. *The Need.*—We know that people all about us are suffering intensely, injuring their health and losing their teeth, largely from lack of knowledge and proper care, especially in early life. The cases of pyorrhea, inflamed gums, salivary deposits and discolored teeth, are legion. The dental nurse could treat all such, and by skill and care would, I believe, soon create a demand for her services, thus add vastly to the comfort of our patients, and help to make dentistry of more importance in the eyes of the public.

3. This does not propose to make the dental nurse a dentist, any more than the medical nurse is a physician, but as there is legitimate field for the medical, there would be for the dental.

"In some of the States the examining boards have threatened prosecution for infraction of the dental law if such a course be pursued; consequently it has not been adopted, much to the loss of general public."

4. *Why Prophylaxis is Neglected.*—"There are very good reasons why this most important duty to our patients is neglected. The necessity for performing the operations, immediately necessary for the repair of existing lesions in tooth structure and adjacent tissue, is of paramount importance. The difficulty of receiving commensurate pay for the hours of time required in faithfully carrying out the treatment by prophylaxis."

"It might as well be said that the administration of drugs hypodermically, the introduction of sounds and catheters, lavage and enemata, the dressing of wounds, and numerous services performed under medical direction by trained nurses, are all infractions of the medical law."

5. *Training of Dental Nurses.*—Dr. Rhein would have the dental nurse trained in the same place as the medical nurse, with additional instruction in the treatment and care of the oral cavity, etc., from a dental member of the teaching body, but I think the training might be carried on in dental offices, and an examining committee appointed and responsible for the preparation of the examining papers, holding clinics, and oral examinations. If the candidate was found to possess the proper qualifications, such an one should receive a certificate, bearing the corporate seal of our association. This, you will perceive, is the merest outline of the scheme, hardly enough, I fear, to introduce the matter to your attention, but it grows on one the more it is considered, and I am aware that the inevitable, and shall I say endless matters of detail are not touched in this paper.

#### A SUMMARY OF THE CASE.

1. The need of such trained help from the dentist's standpoint.
2. The benefit to the public and its educative effect. Her careful instruction, especially to the young, in the care and preservation of the teeth, would be of untold value to our patients, and I am sure would interest many more than we are able to reach without such assistance. The number of people who would be led to care for their teeth would be increased.
3. The dental nurse while on duty should wear a distinctive dress. Such things help to emphasize their position, as in the medical nurse.
4. All the above plan pre-supposes that the necessary legislation be first secured.

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### FRACTURE OF THE INFERIOR MAXILLARY.

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BY O. B. PRICE, D.D.S., MONCTON, N.B.

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Read before the New Brunswick Dental Society.

Having chosen for my subject "Fractures of the Inferior Maxillary," I shall endeavor to give you the history of an interesting case, consisting of a partial and three distinct fractures, one of which was a compound through the symphysis.

The history of the case is as follows: On November 7th, John R., aged fifteen years, while running downstairs in the I.C.R.



General Offices, accidentally fell over the balustrade to the floor, a distance of twenty feet. Medical attendance was hastily summoned, and an examination showed that he had sustained several serious injuries. He had two large scalp wounds, his jaw badly broken, and in addition to this a compound fracture of the left thigh.

On November 26th I was asked to make an examination and adjust a suitable appliance that would hold the fractured parts in their proper positions. I found the little patient in bed, resting quite comfortably. The intense swelling had subsided, and the left side of the face presented a sunken-in appearance. When requested to open his mouth, considerable pain was felt in the region of the left glenoid fossæ, caused no doubt by the improper articulation of the condyle.

The teeth had been well wired, properly articulated with the upper ones and the ordinary four-tailed bandage adjusted. This, however, failed to keep the teeth in their respective positions. The tendency of the muscles was to narrow the floor of the mouth, by drawing the left half of the inferior maxillary downward, backward and to the right, causing the left central to stand in fully one-quarter of an inch back of the right one. In this position the fractured ends had set quite firmly, but by gradual pressure the parts were again loosened and the ends rubbed forcibly together, breaking up false attachments and stimulating repair. The breaks were plainly discernible. On the right a simple fracture between first bicuspid and cuspid teeth; on the left a distinct fracture between first and second bicuspids; and in the front a compound directly between the centrals through the symphysis. This was met about one-half inch below the gum margin by a partial fracture in the alveolar process, starting from between right cuspid and lateral teeth. The piece of process containing these teeth was very loose, and this, together with the other fractures, caused difficulty in holding the broken parts in place while an impression was being taken.

With the assistance of the surgeon an impression of both upper and lower teeth was obtained. Upon placing the models together, the upper anterior teeth were found to considerably overlap the lower ones. The next step was to obtain an appliance for the case that would hold the fractured parts in position and give the patient as much comfort as possible. A dental splint was made and adjusted, but just how far each section of teeth embedded itself was difficult to determine, consequently this was abandoned.

Dr. Angle recommends the following appliance: Choose firm occluding teeth. To these teeth cement German silver bands, on the outside of which buttons are soldered. The jaws are drawn together, and a fine binding wire wrapped around these buttons

in the form of a figure 8. This method, however, owing to the looseness of the teeth and the tendency of the depressor muscles to draw the jaw downward, was not desirable.

Finally, I made bands of German silver for first bicuspid on either side. Ferrules were soldered on the outside of these bands for the reception of a silver wire extending around the labial portion of the teeth, as in a case of regulation. On the lingual side a straight stiff wire was placed between the bands and strengthened at either end by ferrules at the point of soldering. This straight wire, acting as a prop, prevented the fractured ends at the symphysis slipping by one another, and also assisted in holding up the left side of the jaw. The bands were then cemented in place, the jaws being held firmly together while the cement was setting. The anterior teeth, two of which were very loose, were then wired in their respective positions. The jaws were drawn together by a bandage as suggested by Dr. Hamilton. The advantage of this bandage consists in its capability of lifting the anterior fragments vertically, and at the same time it is in no danger of falling forward and downward. It is also easily loosened, and the patient allowed to partake of soft food. After four weeks the mouth was cleared of attachments, and, **although the teeth did not present a pleasing appearance**, I felt satisfied that his natural occlusion had been restored, **and the attachment devised by me had given the desired results.**

During the four weeks which this attachment was left in the mouth, perfect cleanliness was maintained—something which is impossible with vulcanite dental splints.

With such attachment as Dr. Angle has devised there are but few instances in which his appliance do not meet every requirement. However, dentists of our Province have not the opportunity of walking into a dental depot and obtaining that which they require.

#### DISCUSSION.

By JAMES MANNING, D.D.S.

In opening the discussion on the paper just read by Dr. Price, I would say at once that his manner of dealing with his special case does not appeal to me in the least. The bands clasping the bicuspid, and the adjoining bar, seem to be relied upon to keep the ends of the fractured bone in place, and the strain upon those teeth would seem to be altogether too great. They would most probably be loosened, and afford a very insecure and by no means rigid attachment. By way of explaining what is, in my opinion, to be aimed at in the treatment of these cases, I would submit to your consideration these casts lately used in a typical case of double fracture of the inferior maxillary bone:



The patient, W. M., was working on a wharf, which was being repaired. He slipped and fell down through the crib-work, a distance of thirty-five feet, striking many strong, slippery cross-beams in his descent. When picked up, among other injuries that he sustained, was a double-fracture of the inferior maxilla (not a compound fracture). The first cast shows the impression of the inferior teeth, obtained in wax, the physician holding the parts together as well as he could. You will observe that the line of fracture was immediately in front of the right inferior first molar on one side, and of the left inferior cuspid on the other. The action of the hyoid muscles has drawn the anterior fragment downwards and outwards, leaving a difference of about one inch in height between the ends of the fracture at the right side, and about half an inch at the left side. The impression of the teeth in the superior maxilla was, of course, a simple matter.

You are all familiar with the process of sawing your cast to represent the several broken pieces, then taking the sawn pieces and articulating them properly against the model of the superior teeth. Here is the reconstructed model, after being brought into proper articulation.

But this is clearly explained in any good text-book, and what I want to do is to differentiate between the many appliances that are advocated in these cases. The physician **was** somewhat biased in favor of a "wire splint," but **finally** gave me a free hand in the matter. The **wire splint** seemed to offer no promise of rigidity, and **those** hyoid muscles were always pulling the fracture **apart**. An ordinary interdental splint was made (**this is** the one that was used), placed in the mouth, and **fitted** to the superior teeth; then the broken pieces were **carefully** lifted up into place, and fitted into the corresponding cavities in the under side of the splint. Next came the bandaging, and consequent relief from pain, which had been most intense, the patient immediately saying, "That feels comfortable." An antiseptic wash was given him, and he was encouraged to use it freely. The splint was worn for about six weeks, and only removed twice in that time for bandaging. There was absolutely no inflammation developed from its use, and when removed, the articulation was perfect, as you can see by these casts. The physician remarked that he had never seen a splint "just like that one," they were always "so clumsy." For a mistake like this, there can be no excuse, as a very slight support or pillar is needed between the upper and lower portions. A large spring at the front and at the sides facilitates cleansing—in fact, the two portions should be almost separate, except for the four slight pillars.

In the study of such a case, one comes to these conclusions in regard to an interdental splint:

1. It must furnish a rigid support for the fractured bone, as the slightest displacement might afterwards mean a faulty articulation.
2. If possible, it must not infringe upon the mucous membrane.
3. It must admit of frequent and thorough cleansing.
4. It should be as light as is consistent with strength.

Now there are many kinds of interdental splints, the Kingsley, for instance, being a popular and a good one; but on all these counts I believe that nothing approaches the old-time interdental splint when properly made. It can be made a very light affair, indeed. It can be made so as to touch the teeth, the lips and the tongue only, and cannot slip, as a wire or band might. It can be trimmed down so as to show the cutting edges of the teeth through the rubber, and one can see that the fractured portions are properly in their places in the splint; also providing an ideal opportunity for cleansing purposes. It will achieve subsequent proper articulation, and will be a solid comfort to the patient, the physician and the dentist himself.

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## ROOT FILLINGS.

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BY WESTON A. PRICE, D.D.S. CLEVELAND, OHIO.

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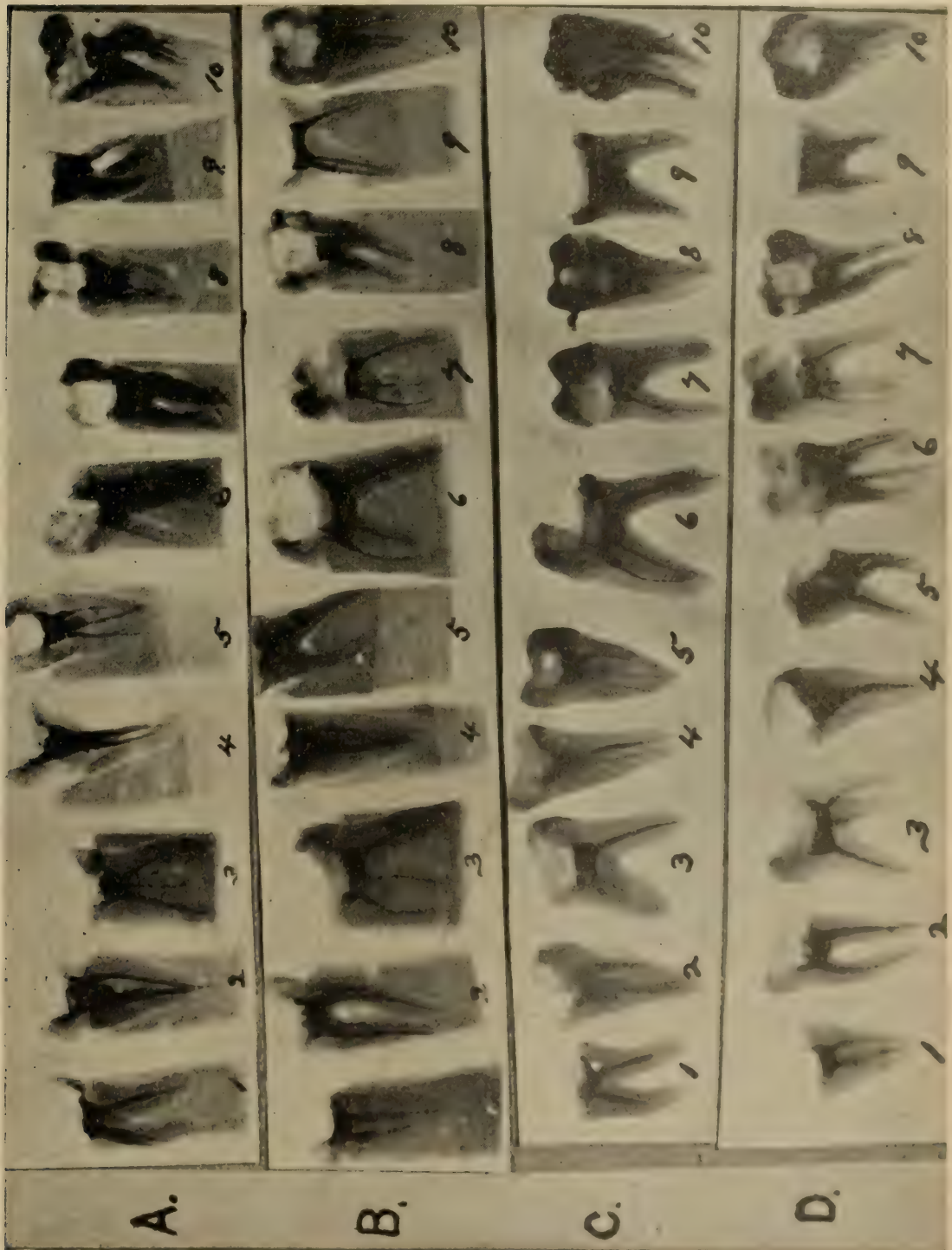
The following is the report of a test of skill in root-filling, which arose out of the discussion of an illustrated paper, on the "Uses of X-Rays in Dentistry," at the meeting of the First Canadian Dental Association, at Montreal, in September, 1902. Dr. James Magee, of St. John, New Brunswick, made the claim that the number of roots that could not be filled perfectly was exceedingly few, and that he could fill to the apex 90 per cent. of the roots of molars.

Dr. McInnis, of Regina, N.W.T., took exception to the claim, asserting that it would be impossible, whereupon Dr. Magee promised to give Dr. McInnis a wager if he could not perfectly fill the roots of ten teeth that Dr. McInnis would select, and set in plaster blocks. Dr. McInnis begged to modify this, making the test seven out of ten teeth, and the teeth to be selected by Dr. Magee himself.



As I had shown the X-Ray pictures, including scores of imperfectly filled roots, it was requested that I be the judge, and that Dr. Magee send the teeth to me for skiagraphing.

There was first much delay in the delivery of the specimens,



and later greater delay on my part in making the X-ray pictures and writing this report. The illustrations show the results condensed.

Ten teeth were received, embedded in little blocks of plas-

ter-of-Paris, in good condition, which, when they came, were too thick to show good pictures through, and had to be shaved down. They were arranged in a row, and skiagraphed Row A. One to ten shows one portion of these teeth while still embedded in the plaster blocks in which they were filled, and Row B a view of the same teeth, from right angles to view A. The plaster was then soaked off, and removed as carefully as possible, and two more skiagraphs made at right angles to each other, shown in C and D. By following a number downward, you have four X-rays pictures of the tooth and its root-fillings.

Tooth No. 1 is an inferior molar, and the mesial root had two canals, both of which are filled through the mesial side of the root, and where the distal canal turned near the apex his root-filling leaves it and proceeds into the wall. The apex is not filled in either root, beside the perforations as shown.

Tooth No. 2 is also an inferior molar, and the root-fillings of both roots extend through the apex, as shown in A, B, C and D.

No. 3 is a superior molar, and is fairly well-filled, except one root, shown in D.

No. 4 has not the apex filled of either root.

No. 5 is also an inferior molar, and has the root-filling perforating the mesial wall, and the apex not filled.

No. 6 is a superior molar, in which neither of the buccal roots are filled to the apex (one of the best, however).

No. 7 is a superior molar, in which the mesial root is not filled to the apex.

No. 8 is an inferior molar, with small canals, with neither of them filled to the apex.

No. 9 is a superior molar, well filled.

No. 10 is an inferior molar, the mesial root has two canals, but both are filled, and the canals open from there to the apex. The root-filling buckled outside the root. The distal root is not filled at the apex, though nearly to it. From a mechanical standpoint, nearly all these roots are far from being well filled to the apex, though they are much better than the average found in the mouth.

This test does prove what is true, I believe, of all dentists, that even our best efforts at root-filling are not as good as we think. Not more than three of these ten teeth can be said to have their roots well filled.



## COMMENT ON DR. PRICE'S REPORT OF ROOT-FILLING TEST.

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BY JAS. M. MAGEE, ST. JOHN, N.B.

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In the first place, it is obvious I have not filled completely to their apices the roots of seven out of the ten teeth submitted to me for operation. That was the number stated in the challenge of Dr. McInnis; so I have failed to meet the challenge. However, a careful examination of the pictures will prove that had I not been hampered by conditions which are not present when we operate in the mouth, I should at least have succeeded in breaking even with Dr. McInnis.

I knew I had penetrated the sides of two of the teeth, the third I was uncertain of. During our conversation as to how the test should be made, Dr. McInnis stated the canals must be filled to the ends or the case was a failure. That is right. Dr. Price took the stand that should the filling protrude beyond the apical opening the case was a failure. Between these two *bunkers*, I wondered where I would come in. Nevertheless, I decided that the best way was to keep on opening until I reached the plaster through the tooth, and then try to so fill the canal that the filling would not protrude. In the mouth we know by sensation when we reach living tissue, and having reached it we dare not go further. We can measure positively the length of every canal to the point where sensation has been felt, and we can fill exactly to that point. In the mouth also when we introduce a solvent for the gutta-percha it remains in the canal. In these cases the plaster absorbed what went to the ends of the roots, and consequently in many instances the gutta-percha did not have sufficient solvent to permit its reaching the apical opening.

I will not make any excuses for the punctures, because no honest dentist will even claim total exemption from that mishap.

Dr. Price's report states I have filled only three teeth properly, including among the failures that where the filling protrudes beyond the apical opening.

Since I was antagonizing Dr. McInnis, rather than Dr. Price, I think as I at least filled to the opening, it should be counted for me. However, that would not have placed me in anything like a safe position, because several of the teeth show an imperfectly filled condition.

The last picture shows a rather peculiar condition. The filling forms a loop outside the tooth. Evidently there was a

bubble in the plaster just where the opening was made. This could not occur in the mouth. The other canal, which illustrates the undeveloped apical end of a third molar root, shows the tip end unfilled. When the tooth was imbedded the plaster filled in this hollow, which I always describe as resembling the crater of an extinct volcano. That is a case which in ordinary practice, noting the age of the patient, and the extent of caries, would not properly be considered a fit one for root-filling. That, however, does not exculpate the puncturing.

In conclusion, let me state that I am not in the least discomfited. So far I feel just as confident now that I can "fill completely to their apical openings the roots of more than seven out of ten molars such as are met with in ordinary practice." This means such teeth we decide should be saved. If, therefore, Dr. McInnis or anyone else who shares his opinion that they cannot be filled in that proportion, will take the trouble to send me the teeth, I will gladly demonstrate it for future publication in the Journal.

The conditions I shall claim for another are these: The teeth are to be freshly extracted and extracted under protest. That is, each tooth sent must be one which the dentist would be rather anxious to save, but the owner demands its removal. Details can be arranged between me and those who are interested enough in this matter to follow it up. The only points on which I shall hold out are the class of teeth to be sent me, and exemption from penalty of failure should the filling material protrude beyond the apical opening.

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THE *Leeds Daily News* says: "It is impossible not to agree with Dr. William Hall, of Headingley, who holds that the rising generation of Britons is, as a whole, puny and lacking in stamina. Some time ago the Doctor compared the physique of Jew children with that of Gentiles, and came to the conclusion that the former was far superior. Perhaps the most serious aspect of the question is the bad teeth possessed by the great proportion of children and young people one sees in the streets, not merely of Leeds and other large cities, but even in healthier country districts. If Dr. Hall can manage to bring home to parents of the poorer classes the very great importance of taking care of their children's teeth, he will have performed a service which, it is not too much to say, would be a national one."—*British Journal of Dental Science*.



## Selections

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### CHAUVINISM\* IN MEDICINE.—ADDRESS IN MEDICINE, CANADIAN MEDICAL ASSOCIATION, MONTREAL, SEPTEMBER 17, 1902.

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A rare and precious gift is the Art of Detachment, by which a man may so separate himself from a life-long environment as to take a panoramic view of the conditions under which he has lived and moved, and that frees him from Plato's den long enough to see the realities as they really are, the shadows as they appear. Could a physician attain to such an art he would find in the state of his profession a theme calling as well for the exercise of the highest faculties of description and imagination as for the deepest philosophic insight. With wisdom of the den only and of my fellow-prisoners, such a task is beyond my ambition and my powers, but to emphasize only the subject that I wish to bring home to your hearts I must first refer to certain distinctive features of our profession:

#### I. FOUR GREAT FEATURES OF THE GUILD.

*Its Noble Ancestry.*—Like everything else that is good and durable in this world, modern medicine is a product of the Greek intellect, and had its origin when that wonderful people created positive or rational science, and no small credit is due to the physicians who, as Professor Gomperz remarks (in his brilliant chapter "On the Age of Enlightenment," *Greek Thinkers*, Vol. I.), very early brought to bear the spirit of criticism on the arbitrary and superstitious views of the phenomena of life. If science was ever to acquire "steady and accurate habits instead of losing itself in a maze of phantasies, it must be by quiet, methodical research." "It is the undying glory of the school of Cos that it introduced this innovation into the domain of its Art, and thus exercised the most beneficial influence on the whole intellectual life of mankind. Fiction to the right ! reality to the left ! was the battle-cry of this school in the war it was the first to wage against the excesses and defects of the nature philosophy" (Gomperz). The critical sense and skeptical attitude of the Hippocratic school laid the foundations of modern medicine on broad lines, and we owe to it: *first*, the emancipation of medicine

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\*Definition : A narrow, illiberal spirit in matters national, provincial, collegiate or personal.

from the shackles of priestcraft and of caste; *secondly*, the conception of medicine as an art based on accurate observation, and as a science, an integral part of the science of man and of nature; *thirdly*, the high moral ideals, expressed in that most "memorable of human documents" (Gomperz), the Hippocratic oath; and *fourthly*, the conception and realization of medicine as the profession of a cultivated gentleman.\* No other profession can boast of the same unbroken continuity of methods and of ideals. We may indeed be justly proud of our apostolic succession. Schools and systems have flourished and gone, schools which have swayed for generations the thought of our guild, and systems that have died before their founders; the philosophies of one age have become the absurdities of the next, and the foolishness of yesterday has become the wisdom of to-morrow; through long ages which were slowly learning what we are hurrying to forget; amid all the changes and chances of twenty-five centuries, the profession has never lacked men who have lived up to these Greek ideals. They were those of Galen and Artæus, of the men of the Alexandrian and Byzantine schools, and of the best of the Arabians, of the men of the Renaissance, and they are ours to-day.

A second distinctive feature is the *remarkable solidarity*. Of no other profession is the word "universal" applicable in the same sense. The celebrated phrase used of the Catholic Church is in truth much more appropriate when applied to medicine. It is not the prevalence of disease or the existence everywhere of special groups of men to treat it that betokens this solidarity, but it is the identity throughout the civilized world of our ambitions, our methods and our work. To wrest from nature the secrets which have perplexed philosophers in all ages, to track to their sources the causes of disease, to correlate the vast stores of knowledge, that they may be quickly available for the prevention and cure of disease—these are our ambitions. To carefully observe the phenomena of life in all its phases, normal and perverted, to make perfect that most difficult of all arts, the art of observation, to call to aid the science of experimentation, to cultivate the reasoning faculty so as to be able to know the true from the false—these are our methods. To prevent disease, to relieve suffering and to heal the sick—this is our work. The profession in truth is a sort of guild or brotherhood, any member of which can take up his calling in any part of the world and find brethren whose language and methods, and whose aims and ways, are identical with his own.

*Thirdly, its progressive character.*—Based on science, medi-

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\* Nowhere in literature do we have such a charming picture, illustrating the position of a cultivated physician in society as that given in Plato's Dialogue of Eryximachus, himself the son of a physician, Acumenus. In that most brilliant age the physician was the companion and friend, and in intellectual intercourse the peer of its choicest spirits.



cine has followed and partaken of its fortunes, so that in the great awakening which has made the nineteenth memorable among centuries, the profession received a quickening impulse more powerful than at any period in its history. With the sole exception of the mechanical sciences, no other department of human knowledge has undergone such a profound change—a change so profound that we who have grown up in it have but slight appreciation of its momentous character. And not only in what has been actually accomplished in unravelling the causes of disease, in perfecting methods of prevention and in wholesale relief of suffering, but also in the unloading of old formulæ, and in the substitution of the scientific spirit of free inquiry for cast-iron dogmas, we see a promise of still greater achievement and of a more glorious future.

And lastly, the profession of medicine is distinguished from all others by *its singular beneficence*. It alone does the work of charity in a Jovian or God-like way, dispensing with free hand truly Promethean gifts. There are those who listen to me who have seen three of the most benign endowments granted to the race since the great Titan stole fire from the heavens. Search the scriptures of human achievement and you cannot parallel in beneficence, Anesthesia, Sanitation, with all that it includes, and Asepsis—a short half-century's contribution towards the practical solution of the problems of human suffering, regarded as eternal and insoluble. We form almost a monopoly of trust in this business. Nobody else comes into active competition with us, certainly not the other learned professions, which continue along the old lines. Every few years sees some new conquest, so that we have ceased to wonder. The work of half-a-dozen men, headed by Laveran, has made waste places of the earth habitable and the wilderness to blossom as the rose. The work of Walter Reed and his associates will probably make yellow fever as scarce in the Spanish Main as is typhus fever with us. There seems to be no limit to the possibilities of scientific medicine, and while philanthropists are turning to it as to the hope of humanity, philosophers see, as in some far-off vision, a science from which may come in the prophetic words of the son of Sirach, "Peace over all the earth."

Never has the outlook for the profession been brighter. Everywhere the physician is better trained and better equipped than he was twenty-five years ago. Disease is understood more thoroughly, studied more carefully, and treated more skilfully. The average sum of human suffering has been reduced in a way to make the angels rejoice. Diseases familiar to our fathers and grandfathers have disappeared, the death-rate from others is falling to the vanishing point, the public health measures have lessened the sorrows and brightened the lives of millions. The vagaries and whims, lay and medical, may neither have dimin-

ished in number nor lessened in their capacity to distress the faint hearted who do not appreciate that to the end of time people must imagine vain things, but in the light of the colossal advances of the past fifty years, what are they but flies on the wheels of progress ?

So vast, however, and composite has the profession become, that the physiological separation, in which dependent parts are fitly joined together, tends to become pathological, and while some parts suffer necrosis and degeneration, others, passing the normal limits, become disfiguring and dangerous out-growths on the body medical. The dangers and evils which threaten harmony among the units are internal, not external. And yet, more than in any other profession, owing to the circumstances of which I have spoken, is complete organic unity possible. Of the many hindrances in the way time would fail me to speak, but there is one aspect of the question to which I would direct your attention in the hope that I may speak a word in season.

Perhaps no sin so easily besets us as a sense of self-satisfied superiority to others. It cannot always be called pride, that master sin, but more often it is an attitude of mind which either leads to bigotry and prejudice or to such a vaunting conceit in the truth of one's own beliefs and positions, that there is no room for tolerance of ways and thoughts which are not as ours are. To avoid some smirch of this vice is beyond human power; we are all dipped in it, some lightly, others deeply grained. Partaking of the nature of uncharitableness, it has not the intensity of envy, hatred and malice, but it shades off in fine degrees from them. It may be a perfectly harmless, even an amusing trait in both nations and individuals, and so well was it depicted by MM. Cogniard in their play, *La Cocarde Tricolore*, 1831, one character in which was the young recruit Chauvin, that the name Chauvinism has become a by-word, expressing a bigoted, intolerant spirit.\* The significance of the word has been widened, and it may be used as a synonym for a certain type of nationalism, for a narrow provincialism, or for a petty parochialism. It does not express the blatant loudness of jingoism, which is of the tongue, while Chauvinism is a condition of mind, an aspect of character much more subtle and dangerous. The one is more apt to be found in the educated classes, while the other is pandemic in the fool multitude—"that numerous piece of monstrosity which, taken asunder, seem men and reasonable creatures of God, but confused together, make but one great beast, and a monstrosity more prodigious than Hydra" (Religio Medici).

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\* It is by no means easy to see, after reading the play, how the name could have arisen. The nationalism displayed is of a most harmless type. In the sense here employed it has been used by standard writers, as, for example, Huxley.



Wherever found, and in whatever form, Chauvinism is a great enemy of progress and of peace and concord among its units. I have not the time, nor had I, have I the ability to portray this failing in all its varieties; I can but touch upon some of its aspects, national, provincial and parochial.

## II. NATIONALISM IN MEDICINE.

Nationalism has been the great curse of humanity. In no other shape has the demon of ignorance assumed more hideous proportions; to no other abscession do we yield ourselves more readily. For whom do the hosannas ring higher than for the successful butcher of tens of thousands of poor fellows who have been made to pass through the fire to this Moloch of nationalism? A vice of the blood, of the plasm rather, it runs riot in the race, and rages to-day as of yore in spite of the precepts of religion and the practice of democracy. Nor is there any hope of change; the pulpit is dumb, the press fans the flames, literature panders to it and the people love to have it so. Not that all aspects of nationalism are bad. Breathes there a man with soul so dead that it does not glow at the thought of what men of his blood have done and suffered to make his country what it is? There is room, plenty of room, for proper pride of land and birth. What I inveigh against is a cursed spirit of intolerance, conceived in distrust and bred in ignorance, that makes the mental attitude perennially antagonistic, even bitterly antagonistic to everything foreign, that subordinates everywhere the race to the nation, forgetting the higher claims of human brotherhood.

While medicine is everywhere tintured with national characteristics, the wider aspects of the profession, to which I have alluded—our common lineage and the community of interests—should always save us from the more vicious aspects of this sin, if I cannot prevent it altogether. And yet I cannot say, as I wish I could, that we are wholly free from this form of Chauvinism. Can we say, as English, French, German, or American physicians, that our culture is always cosmopolitan, not national; that our attitude of mind is always as frankly open and friendly to the French as to the English, to the American as to the German, and that we are free at all times and in all places from prejudice, at all times free from a self-satisfied feeling of superiority the one over the other? There has been of late years a closer union of the profession of the different countries through the International Congress, and through the international meetings of the special societies; but this is not enough, and the hostile attitude has by no means disappeared. Ignorance is at the root. When a man talks slightly of the position and work of his profession in any country, or when a teacher tells you that he fails to find inspiration in the work of his foreign colleagues, in

the words of the Arabian proverb he is a fool, shun him ! Full knowledge, which alone disperses the mists of ignorance, can only be obtained by travel, or by a thorough acquaintance with the literature of the different countries. Personal, first-hand intercourse with men of different lands, when the mind is young and plastic, is the best vaccination against the disease. The man who has sat at the feet of Virchow, or has listened to Traube, or Helmetz, or Cohnheim, can never look with unfriendly eyes at German medicine or German methods. Who ever met with an English or American pupil of Louis or of Charcot, who did not love French medicine, if not for its own sake, for the reverence he bore his great master ? Let our young men, particularly those who aspire to teaching positions, go abroad. They can find at home laboratories and hospitals as well equipped as any in the world, but they may find abroad more than they knew they sought—widened sympathies, heightened ideals, and something perhaps of a *Welt-culture* which will remain through life as the best protection against the vice of nationalism.

Next to a personal knowledge of men, a knowledge of the literature of the profession of different countries will do much to counteract intolerance and Chauvinism. The great works in the department of medicine in which a man is interested are not so many that he cannot know their contents, though they be in three or four languages. Think of the impetus French medicine gave to the profession in the first half of the last century, of the debt we all owe to German science in the latter half, and of the lesson of the practical application by the English of sanitation and asepsis ! It is one of our chief glories, and one of the unique features of the profession, that no matter where the work is done in the world, if of any value it is quickly utilized. Nothing has contributed more to the denationalization of the profession of this continent than, on the one hand, the ready reception of the good men from the old countries who have cast in their lot with us, and, on the other, the influence of our young men who have returned from Europe with sympathies as wide as the profession itself. There is abroad among us a proper spirit of eclecticism, a willingness to take the good wherever found, that augurs well for the future. It helps a man immensely to be a bit of a hero-worshipper, and the stories of the lives of the masters of medicine do much to stimulate our ambition and rouse our sympathies. If the life and work of such men as Bichat and Lænnec will not stir the blood of a young man and make him feel proud of France and of Frenchmen, he must be a dull and muddy mettled rascal. In reading the life of Hunter, of Jenner, who thinks of the nationality which is merged and lost in our interest in the man and in his work ? In the halcyon days of the Renaissance there was no nationalism in medicine, but a fine catholic spirit which made great leaders like Vesalius, Eustachius, Stensen and others at



home in every country in Europe. While this is impossible to-day, a great teacher in any country may have a world-wide audience in our journal literature, which has done so much to make medicine cosmopolitan.

### III. PROVINCIALISM IN MEDICINE.

We may congratulate ourselves that the worst aspects of nationalism in medicine are disappearing before the broader culture and the more intimate knowledge brought by ever-increasing intercourse, yet conditions have favored in English-speaking countries the growth of a very unpleasant sub-variety which may be called provincialism or sectionalism. In one sense the profession of this continent is singularly homogeneous. A young man may be prepared for his medical course in Louisiana and enter McGill College, or he may enter Dalhousie College, Halifax, from the State of Oregon, and in either case he will not feel strange or among strangers so soon as he has got accustomed to his environment. In collegiate life there is a frequent interchange of teachers and professors between all parts of the country. To better his brains the scholar goes freely where he wishes—to Harvard, McGill, Yale, or Johns Hopkins; there are no restrictions. The various medical societies of the two countries are, without exception, open to the members of the profession at large. The President of the Association of American Physicians this year (Dr. James Stewart), is a resident of this city, which gave also last year, I believe, presidents to two of the special societies. The chief journals are supported by men of all sections. The text-books and manuals are everywhere in common; there is, in fact, a remarkable homogeneity in the English-speaking profession, not only on this Continent, but throughout the world. Naturally, in widely-scattered communities, sectionalism—a feeling or conviction that the part is greater than the whole—does exist, but it is diminishing, and one great function of the national associations is to foster a spirit of harmony and brotherhood among the scattered units of these broad lands. But we suffer sadly from a provincialism which has gradually enthralled us, and which sprang originally from an attempt to relieve conditions insupportable in themselves. I have praised the unity of the profession of this continent, in so many respects remarkable, and yet in another respect it is the most heterogeneous ever known. Democracy in full circle touches tyranny, and as Milton remarks, the greatest proclaimers of liberty may become its greatest engrossers (or enslavers). The tyranny of labor unions, of trusts, and of an irresponsible press, may bear as heavily on the people as imperialism in its worst form. And, strange irony of fate! the democracy of Provincial and State Boards has imposed in a few years a yoke more grievous than that which afflicts our brethren in Great Britain, which took generations to forget.

The delightful freedom of intercourse of which I spoke, while wide and generous, is limited to intellectual and social life, and on the practical side, not only are genial and courteous facilities lacking, but the bars of a rigid provincialism are put up, fencing each state as with a Chinese wall. In the Dominion of Canada there are eight portal entries to the profession, in the United States almost as many as there are States, in the United Kingdom nineteen, I believe, but in the latter the license of any one of these bodies entitles a man to registration anywhere in the kingdom. Democracy in full circle has reached on this hemisphere a much worse condition than that in which the conservatism of many generations has entangled the profession of Great Britain. Upon the origin and growth of the Provincial and State Boards I do not propose to touch. The ideal has been reached so far as organization is concerned, when the profession elects its own Parliament, to which is submitted the control of all matters relating to the license. The recognition, in some form, of this democratic principle has been one of the great factors in elevating the standard of medical education, and in a majority of the States of the Union it has secured a minimum period of four years of study and a State Examination for license to practise. All this is as it should be. But it is high time that the profession realized the anomaly of eight boards in the Dominion and some scores in the United States. One can condone the iniquity in the latter country more readily than in this, in which the boards have existed for a longer period, and where there has been a greater uniformity in the medical curriculum. After all these years that a young man, a graduate of Toronto and a registered practitioner in Ontario, cannot practise in the Province of Quebec, his own country, without submitting to vexatious penalties of mind and pocket, or that a graduate from Montreal and a registered practitioner of this province cannot go to Manitoba, his own country again, and take up his life's work without additional payments and penalties, is, I maintain, an outrage; it is provincialism run riot. That this pestiferous condition should exist through the various provinces of this Dominion and so many States of the Union, illustrates what I have said of the tyranny of democracy, and how great enslavers of liberty its chief proclaimers may be.

That the cure of this vicious state has to be sought in Dominion bills and national examining boards, indicates into what debasing depths of narrow provincialism we have sunk. The solution seems so simple, particularly in this country, with its uniformity of methods of teaching and length of curriculum. A generous spirit that will give to local laws a liberal interpretation, that limits its hostility to ignorance and viciousness, that has regard as much or more for the good of the guild as a whole as for the profession of any province—could such a spirit brood



over the waters, the raging waves of discord would soon be stilled. With the attitude of mind of the general practitioner in each province rests the solution of the problem. Approach it in a friendly and gracious spirit, and the difficulties which seem so hard will melt away. Approach it in a Chauvinistic mood, fully convinced that the superior and unparalleled conditions of your province will be jeopardized by reciprocity or by federal legislation, and the present antiquated and disgraceful system must await for its removal the awakening of a younger and more intelligent generation.

It would ill become me to pass from this subject—familiar to me from my student days, from the interest taken in it by that far-sighted and noble-minded man, Dr. Palmer Howard—it would ill become me, I say, not to pay a tribute of words to Dr. Roddick for the zeal and persistence with which he has labored to promote union in the compound, comminuted fracture of the profession of this Dominion. My feeling on the subject of international, intercolonial, and interprovincial registration is this—a man who presents evidence of proper training who is a registered practitioner in his own country, and who brings credentials of good standing at the time of departure; should be welcomed as a brother, treated as such in any country, and registered upon payment of the usual fee. The ungenerous treatment of English physicians in Switzerland, France, and Italy, and the chaotic state of internecine warfare existing on this Continent, indicates how far a miserable Chauvinism can corrupt the great and gracious ways which should characterize a liberal profession.

Though not germane to the subject, may I be allowed to refer to one other point in connection with the State Boards—a misunderstanding, I believe, of their functions. The profession asks that the man applying for admission to its ranks shall be of good character and fit to practise the science and art of medicine. The latter is easily ascertained if practical men have the place and the equipment for practical examinations. Many of the boards have not kept pace with the times, and the questions set too often show a lack of appreciation of modern methods. This has, perhaps, been unavoidable since, in the appointment of examiners, it has not always been possible to select experts. The truth is, that however well organized and equipped, the state boards cannot examine properly in the scientific branches, nor is there need to burden the students with additional examinations in anatomy, physiology, and chemistry. The Provincial and State Boards have done a great work for medical education on this continent, which they would crown and extend by doing away at once with all theoretical examinations and limiting the tests for the license to a rigid practical examination in medicine, surgery and midwifery, in which all minor subjects could be included.

## IV. PAROCHIALISM IN MEDICINE.

Of the parochial and more personal aspects of Chauvinism I hesitate to speak; all of us, unwittingly as a rule, illustrate its varieties. The conditions of life which round us and bound us, whether in town or country, in college or institution, give to the most liberal a smack of parochialism, just as surely as we catch the tie of tongue of the land in which we live. The dictum put into the mouth of Ulysses, "I am a part of all that I have met," expresses the truth of the influence upon us of the social environment, but it is not the whole truth, since the size of the parish, representing the number of points of contact, is of less moment than the mental fibre of the man. Who has not known lives of the greatest freshness and nobility hampered at every turn and bound in chains the most commonplace and sordid, lives which illustrate the liberty and freedom enjoyed by minds innocent and quiet, in spite of stone walls and iron bars. On the other hand, scan the history of progress in the profession, and men the most illiberal and narrow, reeking of the most pernicious type of Chauvinism, have been among the teachers and practitioners of the large cities and great medical centres; so true is it, that the mind is its own place and in itself can make a man independent of his environment.

There are shades and varieties which are by no means offensive. Many excellent features in a man's character may partake of its nature. What, for example, is more proper than the pride which we feel in our teachers, in the university from which we have graduated, in the hospital in which we have been trained? He is a "poor sort" who is free from such feelings, which only manifest a proper loyalty. But it easily degenerates into a base intolerance which looks with disdain on men of other schools and other ways. The pride, too, may be in inverse proportion to the justness of the claims. There is plenty of room for honest and friendly rivalry between schools and hospitals, only a blind Chauvinism puts a man into a hostile and intolerant attitude of mind at the mention of a name. Alumni and friends should remember that indiscriminate praise of institutions or men is apt to rouse the frame of mind illustrated by the ignorant Athenian who, so weary of hearing Aristides always called the Just, very gladly took up the oyster shell for his ostracism, and even asked Aristides himself, whom he did not know, to mark it.

A common type of collegiate Chauvinism is manifest in the narrow spirit too often displayed in filling appointments. The professoriate of the profession, the most mobile column of its great army, should be recruited with the most zealous regard to fitness, irrespective of local conditions that are apt to influence the selection. Inbreeding is as hurtful to colleges as to cattle. The interchange of men, particularly of young men, is most stimulating, and the complete emancipation of the chairs which



has taken place in most of our universities should extend to the medical schools. Nothing, perhaps, has done more to place German medicine in the forefront to-day than a peripatetic professorate, owing allegiance only to the profession at large, regardless of civic, sometimes indeed national, limitations and restrictions. We acknowledge the principle in the case of the scientific chairs, and with increasing frequency act upon it, but an attempt to extend it to other chairs may be the signal for display of rank parochialism.

Another unpleasant manifestation of collegiate Chauvinism is the outcome, perhaps, of the very keen competition which at present exists in scientific circles. Instead of generous appreciation of the work done in other places, there is a settled hostility and a narrowness of judgment but little in keeping with the true spirit of science. Worse still is the "lock and key" laboratory in which suspicion and distrust reign, and everyone is jealous and fearful lest the other should know of or find out about his work. Thank God! this base and bastard spirit is not much seen, but it is about, and I would earnestly entreat any young man who unwittingly finds himself in a laboratory pervaded with this atmosphere, to get out ere the contagion sinks into his soul.

Chauvinism in the unit, in the general practitioner, is of **much** more interest and importance. It is amusing to read and **hear** of the passing of the family physician. There never **was** a time in our history in which he was so much in evidence, in which he was so prosperous, in which his prospects **were** so good or his power in the community more potent. The public has even begun to get sentimental over him! He **still** does the work; the consultants and the specialists do the talking and the writing—and take the fees! By the work, I mean that great mass of routine practice which brings the doctor into every household in the land and makes him, not alone the adviser, but the valued friend. He is the standard by which we are measured. What he is we are; and the estimate of the profession in the eyes of the public is their estimate of him. A well trained, sensible family doctor is one of the most valuable assets in a community, worth to-day, as in Homer's time, many another man. To make him efficient is our highest ambition as teachers, to save him from evil should be our constant care as a guild. I can only refer here to certain aspects in which he is apt to show a narrow Chauvinism hurtful to himself and to us.

In no single relation of life does the general practitioner show a more illiberal spirit than in the treatment of himself. I do not refer so much to careless habits of living, to lack of routine in work, or to failure to pay due attention to the business side of the profession—sins which so easily beset him—but I would speak of his failure to realize, first, the need of a life-long progressive personal training, and, secondly, the danger lest in the stress of

practice, he sacrifice that most precious of all possessions, his mental independence. Medicine is a most difficult art to acquire. All the college can do is to teach the students principles, based on facts in science, and give him good methods of work. These simply start him in the right direction, they do not make him a good practitioner—that is his own affair. To master the art requires sustained effort, like the bird's flight, which depends on the incessant action of the wings; but this sustained effort is so hard that many give up the struggle in despair. And yet it is only by persistent, intelligent study of disease upon a methodical plan of examination that a man gradually learns to correlate his daily lessons with the facts of his previous experience and with that of his fellows, and so acquires clinical wisdom. Nowadays it is really not a hard matter for a well-trained man to keep abreast of the best work of the day. He need not be very scientific, so long as he has a true appreciation of the dependence of his art on science, for, in a way, it is true that a good doctor may have practice and no theory, art and no science. To keep up a familiarity with the use of instruments of precision is an all-important help in his art, and I am profoundly convinced that as much space should be given to the clinical laboratory as to the dispensary. One great difficulty is that while waiting for the years to bring the inevitable yoke, a young fellow gets stale and loses that practised familiarity with technique which gives confidence. I wish the older practitioners would remember how important it is to encourage and utilize the young men who settle near them. In every large practice there are a dozen or more cases requiring skilled aid in the diagnosis, and this the general practitioner can have at hand. It is his duty, and failing to do so he acts in a most illiberal and unjust way to himself and to the profession at large. Not only may the older man, if he has soft arteries in his grey cortex, pick up many points from the young fellow, but there is much clinical wisdom afloat in each parish which is now wasted or dies with the old doctor, because he and the young men have never been on friendly terms.

In the fight which we have to wage incessantly against ignorance and quackery among the masses, and follies of all sorts among the classes, *diagnosis*, not *drugging*, is our chief weapon of offence. Lack of systematic personal training in the methods of the recognition of disease leads to the misapplication of remedies, to long courses of treatment when treatment is useless, and so directly to that lack of confidence in our methods which is apt to place us in the eyes of the public on a level with empirics and quacks.

Few men live lives of more devoted self-sacrifice than the family physician, but he may become so completely absorbed in work that leisure is unknown; he has scarce time to eat or to sleep, and, as Dr. Drummond remarks, in one of his poems, "He's



the only man, I know, mem, don't get no holiday." There is danger in this treadmill life lest he lose more than health, and time, and rest—his intellectual independence. More than most men he feels the tragedy of isolation—that inner isolation, so well expressed in Matthew Arnold's line: "We mortal millions live *alone*." Even in populous districts the practice of medicine is a lonely road which winds up-hill all the way, and a man may easily go astray and never reach the delectable mountains unless he early finds those shepherd guides of which Bunyan tells, *Knowledge, Experience, Watchful* and *Sincere*. The circumstances of life mould him into a masterful, self-confident, self-centred man, whose worst faults often partake of his best qualities. The peril is that, should he cease to think for himself, he becomes a mere automaton, doing a penny-in-the-slot business which places him on a level with the chemist's clerk who can hand out specifics for every ill, from the "pip" to the pox. The salt of life for him is a judicious skepticism, not the coarse, crude form, but the sober sense of honest doubt expressed in the maxim of the sly old Sicilian Epicharmus, "Be sober and distrustful, these are the sinews of the understanding." A great advantage, too, of a skeptical attitude of mind is, as Green the historian remarks, "One is never very surprised or angry to find that one's opponents are in the right." It may keep him from self-deception and from falling into that medical slumber into which so many drop, deep as the theological slumber so lashed by Erasmus, in which a man may write letters, debauch himself, get drunk, and even make money—a slumber so deep at times that no torpedo-touch can waken him.

It may keep the practitioner out of the clutches of the arch-enemy of his professional independence—the pernicious literature of our camp-followers, a literature increasing in bulk, in meretricious attractiveness, and in impudent audacity. To modern pharmacy we owe much and to pharmaceutical methods we shall owe much more in the future, but the profession has no more insidious foe than the large borderland pharmaceutical houses. No longer an honored messmate, pharmacy in this form threatens to become a huge parasite, eating the vitals of the body medical. We all know only too well the bastard literature which floods the mail, every page of which illustrates the truth of the axiom, the greater the ignorance the greater the dogmatism. Much of it is advertisements of nostrums foisted on the profession by men who trade on the innocent credulity of the regular physician, quite as much as any quack preys on the gullible public. Even the most respectable houses are not free from this sin of arrogance and ignorant dogmatism in their literature. A still more dangerous element to the mental virility of the general practitioner, is the "drummer" of the drug house. While many of them are good, sensible fellows, there are others, voluble as

Cassia, impudent as Autolycus, and senseless as Caliban, who will tell you glibly of the virtues of extract of the coccygeal gland in promoting pineal metabolism, and are ready to express the most emphatic opinions on questions about which the greatest masters of our art are doubtful. No class of men with which we have to deal illustrate more fully that greatest of ignorance—the ignorance which is the conceit that a man knows what he does not know; but the enthrallment of the practitioner by the manufacturing chemist, and the revival of a pseudo-scientific polypharmacy, are too large questions to be dealt with at the end of an address.

But there is a still greater sacrifice which many of us make, heedlessly and thoughtlessly forgetting that “Man does not live by bread alone.” One cannot practise medicine alone and practise it early and late, as so many of us have to do, and hope to escape the malignant influences of a routine life. The incessant concentration of thought upon one subject, however interesting, tethers a man’s mind in a narrow field. *The practitioner needs culture as well as learning.* The earliest picture we have in literature of a scientific physician, in our sense of the term, is as a cultured Greek gentleman; and I care not whether the young man labors among the beautiful homes on Sherbrooke Street or in the slums of Caughnawaga, or in some sparsely settled country district, *he cannot afford to have learning only.* In no profession does culture count for so much as in medicine, and no man needs it more than the general practitioner working among all sorts and conditions of men, many of whom are influenced quite as much by his general ability, which they can appreciate, as by his learning of what they have no measure. The day has passed for the “practiser of physic” to be, like Mr. Robert Levet, Dr. Johnson’s friend, “*Obscurely wise and coarsely kind.*” The wider and freer the man’s general education the better practitioner he is likely to be, particularly among the higher classes, to whom the *reassurance and sympathy of a cultivated gentleman of the type of Eryximachus, may mean much more than pills and potions.* But what of the men of the type of Mr. Robert Levet, or “Ole Docteur Fiset,” whose virtues walk a narrow round, the men who do the hard general practices in the poorer districts of the large cities, in the factory towns, and in the widely scattered rough agricultural regions—what, I hear you say, has culture to do with him? Everything! *It is the bichloride which may prevent the infection and may keep a man sweet and whole amid the most debasing surroundings.* Of very little direct value to him in his practice—*though the poor have a pretty keen appreciation of a gentleman*—it may serve to prevent the degeneration so apt to overtake the over-worked practitioner, whose nature is only too prone to be subdued like the dyer’s hand to what it works in. If a man does not sell his soul, if he does not part with his birth-



right of independence for a mess of pottage to the Ishmaelites who harrass our borders with their clubs and oppress us with their exactions, if he can only keep *free*, the conditions of practice are nowhere incompatible with St. Paul's noble Christian or Aristotle's true gentleman.\*

Whether a man will treat his professional brethren in a gentlemanly way or in a narrow illiberal spirit is partly a matter of temperament, partly a matter of training. If we had only to deal with one another the difficulties would be slight, but it must be confessed that the practice of medicine among our fellow creatures is often a testy and choleric business. When one has done his best, or when a mistake has arisen through lack of special knowledge, but more particularly when, as so often happens, our heart's best sympathies have been engaged, to be misunderstood by the patient and his friends, to have evil imputed and to be maligned, is too much for human endurance and justifies a righteous indignation. *Women, our greatest friends and our greatest enemies, are the chief sinners*, and while one will exhaust the resources of the language in describing our mistakes and weaknesses, another will laud her pet doctor so indiscriminately that all others come under a sort of oblique condemnation. It is hard to say whether as a whole we do not suffer just as much from the indiscriminate praise. But against this evil we are helpless. Far otherwise, when we do not let the heard word die: *not to listen is best*, though that is not always possible, *but silence is always possible*, than which we have no better weapon in our armory against *evil-speaking, lying, and slandering*. The bitterness is when the tale is believed and a brother's good name is involved. Then begins the worst form of ill-treatment that the practitioner receives—and at his own hands ! He allows the demon of resentment to take possession of his soul, when five minutes' frank conversation might have gained a brother. What more joyful in a small or large community than to see the brethren dwelling together in unity. The bitterness, the rancor, the personal hostility which many of us remember in our younger days has been very largely replaced by a better feeling, and while the Golden Rule is not always, as it should be, our code of ethics, we have certainly become more charitable the one towards the other.

To the senior man in our ranks we look for an example, and in the smaller towns and country districts if he would remember that it is his duty to receive and welcome the young fellow who settles near him, that he should be willing to act as his adviser and refuse to regard him as a rival, he may make a good friend and perhaps gain a brother. In speaking of professional harmony, it is hard to avoid the trite and commonplace, but neglecting the stale old chaps whose ways are set and addressing the young, to

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\*Sir Thomas Browne.

whom sympathy and encouragement are so dear, and whose way of life means so much to the profession we love, to them I would give the motto of St. Ambrose. It is told of St. Augustine, after having decided to become a Christian, that when he visited St. Ambrose, at dinner with the venerable father and his brethren, one motto above all others on the wall of the refectory caught his eye and heart, "If you cannot speak well of your brother, keep silence!"

With our history, traditions, achievements, and hopes, there is little room for Chauvinism in medicine. The open mind, the free spirit of science, the ready acceptance of the best from any and every source, the attitude of rational receptiveness rather than of antagonism to new ideas, the liberal and friendly relationship between different nations and different sections of the same nation, the brotherly feeling which should characterize members of the oldest, most beneficent and univocal guild that the race has evolved in its upward progress—these should neutralize the tendencies upon which I have so lightly touched.

I began by speaking of the art of detachment as that rare and precious quality demanded by one who wished to take a philosophic view of the profession as a whole. In another way and in another sense this art may be still more precious. There is possible to each one of us a higher type of intellectual detachment, a sort of separation from the vegetative life of the work-a-day world—almost too much with us—which may enable a man to gain a true knowledge of himself and of his relations to his fellows. Once attained, self-deception is impossible, and he may see himself even as he is seen—not always as he would like to be seen—and his own deeds and the deeds of others stand out in their true light. In such an atmosphere pity for himself is so commingled with sympathy and love for others that there is no place left for criticism or for harsh judgment of his brother. "But these are thoughts of things which thoughts but tenderly touch," as that most liberal of men and most distinguished of general practitioners, Sir Thomas Browne, so beautifully remarks; and it may be sufficient to remind this audience, made up of practical men, *that the word of action is stronger than the word of speech.*—*Dom. Med. Monthly.*

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## NUTRITION, RICKETS AND DENTAL DEFECTS.

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BY J. KINGSTON BARTON, M.R.C.P., M.R.C.S. (LONDON).

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Two years ago I was anxious to prove by experiments that the rickety condition induced in children by improper feeding in infancy, and especially the imperfect permanent teeth of those fed by hand, might be imitated in the rearing of very young



calves. I made arrangements with a dairy farmer in the New Forest to feed some calves on fixed lines to imitate feeding in the human nursery.

The first chosen was a male calf fed entirely on its mother's milk, drawn off and then given direct. At the end of thirteen weeks this calf was sold to the butcher. On being killed specimens of rib and breast bone joints and knee (which correspond to the wrist joint) were preserved. These joints were selected as being those in which the affection called rickets becomes most easily manifest. In passing it may be noticed that this calf, being so fat and well nourished, obtained so good a price that the cost of the experiment was much reduced.

A calf (male) was then selected and fed on separated (fresh) milk with a patent calf food much used by farmers, but no cod oil was used. This calf got an acute stoppage, and died when about six weeks old, but was recognized not to be thriving before its fatal illness. Another calf (male) was started on the same lines, and this calf managed to exist in a very thin state till killed, also aged thirteen weeks. Similar joints were preserved from this animal as from that of the first experiment.

Since making my few experiments, I have seen the reports of a large series of similar experiments made by the Board of Agriculture in Ireland (quoted in the *Field*, February 7th, 1903). Of course the object of the Irish Board was to find out the most economical way of rearing calves satisfactorily.

In making sections of the bones and joints I did not find the changes that might have been expected in early rickets, but a very marked difference was seen in the amount of internal fat and the amount of blood distributed to the growing parts of the bones. No doubt the calves examined by me were much too young when killed to show well-marked signs of rickets, and in any case the quick growth to adolescence in the cow prevents the actual disease of rickets being produced. Also, natural feeding (the eating of herbage) begins so soon after three months from birth that this would prevent actual rickets ensuing. However, my two extreme cases agree with the results achieved by the Irish Board.

The great mortality of human infants owing to a scour bacillus developed in dirty milk in summer-time is due to the feeble resistance of hand-fed and patent-food-fed infants to all acute disease. So that after the State has no doubt reduced infant mortality by insisting on a pure public milk supply, there would still be a large mortality left to be reduced by teaching the public to avoid all patent foods for infants. One of the chief objects of my experiments was to find out why hand-fed infants have such bad permanent teeth, but I soon found that unless animals were fed as in my second and third experiments as long as possible, and then kept till they were fully grown (four years

old), there would be no means of seeing whether the teeth had been injured by the bad feeding at the early stage of life. If any dental or medical practitioners interested in this are aware of any really poor farmers who rear their calves on separated milk with calf meal, and who keep such beasts (female most likely) as future dairy cows, I should much like observations made on the lower front teeth, especially with regard to the absence of enamel, particularly in horizontal lines, as so often seen in the human subject. It would not be necessary to kill the animals. The Irish Board very kindly did their best to help me, but as all their calves were sold to a butcher in Scotland before the animals were quite two years old, the teeth were not sufficiently advanced for observation.

The great French physician Magitot in his work on the diseases of teeth in animals, figures a case of the lower front teeth with loss of enamel in a Durham ox. I searched the Museum of the Royal Veterinary College for a similar specimen, but without success; but the great increase in use of patent foods with separated milk will I am sure supply more examples of defects in the permanent teeth of cows if carefully looked for in animals over three years of age. Fortunately it will not be of the same importance in cows as it is in the human race.—*British Dental Journal*.

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## DENTISTRY IN THE BRITISH ARMY.

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BY GEORGE CECIL.

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Prior to the commencement of the recent hostilities in South Africa the military authorities did not consider qualified dentists as a necessary portion of the *personnel* of a British army in the field. When the war was in its second year, however, it was suddenly decided to send out a certain number of dentists to the Cape, and applications for employment in this capacity were accordingly invited. A selection from among those offering themselves was then made, and the successful candidates immediately embarked. That it was high time that they did so was evidenced by the fact that by the date of their arrival in South Africa a considerable proportion of the troops engaged on active service were incapacitated from duty owing to toothache contracted during the campaign on the veldt. When the conditions under which they fought—sleeping on the damp ground with scarcely any cover, and limited for months at a time to hard biscuits and indigestible trek-ox rations—are taken into consideration, it is not surprising to find that the men had much



trouble with their teeth. With the advent of the dentists, however, a change for the better speedily manifested itself, and after these had once got fairly to work cases of admission to hospital on this account dropped to a trifling percentage.

Except when a campaign on a large scale is in progress, the military authorities display remarkably little concern about the condition of the British soldier's teeth. It seems strange to say so, but it is nevertheless a fact that dentistry forms no portion of the examination to which candidates for commission in the Army Medical Department are subjected before receiving their appointments or commissions, as they prefer to have them known. While undergoing their preliminary training at Netley Hospital, after being admitted into the Department as probationers, they are given a short course of instruction in this subject, but the instruction is of an extremely perfunctory nature. There is not even a single professor of dentistry on the staff of the whole institution. The natural result is that when the young and inexperienced surgeon is called upon to treat a soldier suffering from any complaint connected with his teeth the methods he employs are extremely empirical. Sometimes they effect a cure; more often, however, the reverse is the case. This is certainly so when the injury is at all a serious one. Fortunately, in these instances the army doctor is sometimes honest enough to admit his inability to afford the sufferer any relief and candidly advises the consulting of a civilian practitioner. This course involves the spending of a good deal more money than the private soldier drawing a shilling a day can afford, and, as "free medical attendance" is distinctly promised as one of the benefits of enlistment, it is nothing less than fraud to withhold it.

Speaking generally, the average army doctor has only one method of treating toothache. It is that of extraction. No matter what the cause or what the condition of the patient's jaw, he endeavors to apply it. Such delicate operations as filling or crowning are entirely beyond him, as is also that of making artificial teeth. He has never learned how to carry them out, and is, as a general rule, intelligent enough to refrain from attempting them. So far as this goes, however, it is doubtful if he would get a patient to submit to being experimented upon, for the average soldier has a decidedly poor opinion of the military surgeon's skill in matters connected with dentistry. It may be added that Atkins extends this opinion to each branch of the medico's work.

In his methods of extraction the army doctor usually adopts those in force among the itinerant practitioners to be met with at country fairs. No anesthetic is ever administered, and the

operation, consequently, resolves itself into a trial of strength between the forceps and the tooth. It is not to be wondered at, therefore, that a soldier has to be suffering very severely before he will voluntarily submit himself to the "dental" skill of a military surgeon. Indeed, he will endure untold agonies first, or cheerfully sacrifice a month's income in order to consult a civilian dentist.

A great deal of the toothache and dental disorders generally met with in the British army is directly due to the neglect and want of cleanliness displayed by the soldier himself in matters affecting his teeth. The use of a tooth-brush is the exception, and not the rule, in a barrack-room, for the class from which come the majority of recruits have no acquaintance with this necessary article of the toilet. When a man has not brushed his teeth regularly before joining the army he is not likely to acquire the habit of doing so afterwards. His officers, too, do not take the slightest trouble to impress upon him the advisability of attending to this detail. Various pains and penalties make it incumbent upon him to clean his uniform and keep his equipment spotless, but so far as his teeth are concerned they may never see a brush from one year's end to another without any breach of discipline whatever.

Another fertile cause of toothache is the unsanitary condition in which much of a soldier's life is spent in the British army. When in barracks, for example, he lives and sleeps in a room which he shares with perhaps fifty or sixty others, his bed being placed either against a window or a door, and thus affected by a constant draught. The cubic space allotted to him, too, is condemned by all experts as insufficient. Then, when on manoeuvres, the soldier sleeps in a tent, or else on the ground, his bedding limited to a couple of blankets. If the weather be wet and cold (as is the case for the greater part of the year in England), he naturally lays the seeds of dental troubles innumerable, while even in fine weather this mode of living is apt to have an adverse effect on the teeth.

It is, however, in the opinion of those who have studied the subject closely, the soldier's diet (together with the inferior cooking it receives) that is responsible for most of the dental troubles met with in the British army. In the first place, the food is unpalatable; in the second, it is indigestible; in the third, it is largely deficient in the constituents that make for nourishment; and finally, it is prepared in a singularly unskilful fashion. The military cook, it should be explained, is, for the most part, as ignorant of the culinary art as a monkey is of mathematics. Prior to his enlistment he has never cooked a meal in his life.



Consequently, when he enters a regimental kitchen for the first time in order to serve up his comrade's dinner, his views are exceedingly primitive. Even the preparation of the simplest dishes is beyond his powers, and he either roasts a joint to a cinder or sends it to the barrack-room half raw. Of course, after a little time he improves somewhat, but until he does so the men upon whom his experiments are made have an unfortunate time of it.

It must not be thought that no pains are taken by the authorities to remedy this condition of affairs. As a matter of fact, they do their best, but circumstances are too strong for them. An ex-laborer (which is the calling of the average recruit) cannot be converted into even a fifth-rate *chef* at five minutes' notice. Then there are no means of according him any proper instruction in barrack and the appliances in the regimental kitchens are of so antiquated a nature that it is next to impossible to achieve good results from them. One non-commissioned officer in every battalion is a graduate of the Aldershot School of Cookery, and is supposed to instruct the men placed under his charge. The supervision that he exerts, however, is of an exceedingly nominal nature.

When in camp or engaged on active service, British soldiers are frequently given biscuits in lieu of bread. These biscuits are of an exceedingly hard nature, and are in themselves enough to ruin any jaw but that of a negro or an alligator. They bear, indeed, a close resemblance to chips of paving-stone, for which no doubt they would afford an excellent substitute. It is no great matter for surprise, therefore, that after living on these for a few days the unfortunate soldier finds his teeth causing him a good deal of trouble. On this account, presumably, the War Office have lately issued instructions that no recruits shall be accepted whose jaws are not in a perfectly sound condition. It has also been decreed that the possession of more than a certain number of artificial teeth shall be held as a physical disqualification. From the statistics published on this subject it appears that several thousand men, who would otherwise be eligible for enlistment, are rejected by the medical authorities every year owing to the "bad condition of their jaws." This same test is also applied to candidates for commissions as officers. As, however, the class from which these latter are drawn are in the habit of attending to their teeth during their civilian careers, the number of rejections among them are on this account comparatively small.

That the Royal Army Medical Corps doctors are ever likely to acquire more dental knowledge than they at present possess

is highly unlikely. For what time remains over from taking care of his uniform, admiring his sword, brushing his moustache, cultivating a military bearing and the acquaintance of his social superiors, is not devoted by the medical man in question to studying his profession. Nor is there any particular reason why he should qualify himself for the post of regimental dentist, since his future rise of income is purely a question of promotion. And as he cannot avoid being promoted as the length of his service increases, he is, perhaps, wise in refraining from giving himself unnecessary trouble. At the same time it is undeniably hard on the soldier that he should be enlisted under false pretences, inasmuch as the care of his teeth is almost entirely neglected, although really a part of his promised free medical attendance.

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### Proceedings of Dental Societies

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#### THIRTY-FIFTH ANNUAL UNION MEETING OF SEVENTH AND EIGHTH DISTRICT DENTAL SOCIETIES, STATE OF NEW YORK.

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The thirty-fifth annual union meeting of the Seventh and Eighth District Dental Societies of the State of New York will be held at the Osborn House, Rochester, N.Y., October 27th, 28th and 29th, 1903. A most excellent meeting with numerous clinics, is promised. One day will be devoted exclusively to clinics, with discussions of same in evening. Application has been made for reduced railway rates. Exhibitors desiring space are requested to communicate with the hotel, or the Business Committee. An incomplete programme follows:

#### PAPERS.

I. L. M. Waugh, Buffalo, N.Y., "Histology of Dentine," illustrated with lantern slides.

C. W. Stainton, Buffalo, N.Y. Subject to be announced.

Harry L. Belcher, Buffalo, N.Y. Subject to be announced.

J. W. Beach, Buffalo, N.Y., "New Remedies."

Robert Brewster, Chicago, Ill., "The Avoidance of Opacity in Porcelain Inlays, and the Use of Oil Colors in Porcelain Work."

A. Osgood, Bath, N.Y., "The Vacuum Chamber."

L. S. Goble, Rochester, N.Y., "Practical Sterilization for the Dentist."



## CLINICS.

Robert Brewster, Chicago, Ill.: (a) "Building Porcelain Inlay Entirely of One Body;" (b) "Building Porcelain Inlay, Using Different Layers and Colors;" (c) "Demonstrate the Use of Oil Colors in Porcelain Work;" (d) "Demonstrate the Swaging Method of Making Matrices."

A. S. Barnes, Oneonta, N.Y., "Partial Dentures."

C. H. Land, Detroit, Mich., (a) "Porcelain Veneers for Cement and Gutta-Percha Fillings;" (b) "Porcelain Veneered Incisors, and an Entire Artificial Enamelling Over Defective Teeth that is Thoroughly Practical and Durable without the Necessity of Pulp Destruction."

H. H. Tompkins, Utica, N.Y. "A New Engine Bur for Inlay Work."

I. C. Edington, Rochester, N.Y., "The Use of Vulcanizable Gutta-Percha in Plate-Work."

F. M. Rood, Rochester, N.Y., "The Use of a Screw to Support Pulpless Teeth."

C. B. Mitchell, Rochester, N.Y., "Preparation of Cavity and Matrix for Porcelain Inlays."

C. W. LaSalle, Rochester, N.Y., "Aluminum Lining for Rubber Plate."

A. E. Sager, Rochester, N.Y., "Dr. D. D. Smith's Method in Oral Prophylaxis."

C. C. Bachman, Waterloo, N.Y., "Putting New Porcelain Facings on Bridge-Work in the Mouth."

C. W. Cochran, Erie, Pa., "Porcelain Jacket or Enamel Crown."

R. W. McDonald, Erie, Pa., "Porcelain Dowel Crown Using Brewster's Body."

C. C. Sanbach, Scranton, Pa., (a) "Porcelain Work, Using Jenkins' Furnace;" (b) "Demonstrating Use of DeTrey Gold."

H. W. Arthur, Pittsburg, Pa., "Readily Made Matrices and Their Application."

C. H. Reynolds, Strathroy, Ont., Canada, "Microscopical Specimens from the Mouth."

G. Evans, New York, "Method of Forming Close-Fitting Crown; Posts and Cementation of Crowns and Bridges with Gutta-Percha Cement."

L. W. Ballard, Alliance, Ohio, "Country Dentists' Make-Shifts."

W. E. Jackson, Newcastle, Pa., "Porcelain-Faced Gold Caps for Bicupids and Molars."

A. McAlpin, Bradford, Pa., "Anchor Screws and a New Chuck for Inserting Them."

H. C. Webb, Syracuse, N.Y., "Simple Method of Regulating with a Rubber Appliance."

J. B. Snyder, Bryan, Ohio, "Partial Restoration of Incisors Using Electric Mallet and Gold and Platinum Foils."

C. F. Bunbury, Rochester, N.Y., "Partial Lower Dentures."

J. J. Schimpt, Philadelphia, Pa., "Demonstrate Hammond Furnace, Using S. S. White's High-Fusing Porcelain Body."

C. E. Wettlaufer & Bro., Buffalo, N.Y., "Inlays."

E. B. Spalding, Detroit, Mich., "An All-Porcelain Jacket Crown, or the Natural Enamel Replaced by Porcelain."

The subjects of the following to be announced: J. L. R. Heichhold, Clearfield, Pa.; A. R. VanVleck, Hudson, N.Y., L. C. Jones, Wolcott, N.Y. A complete programme will be issued on October 13th.

W. W. SMITH,

Chairman Business Committee,

No. 63 East Avenue, Rochester, N.Y.

September 16th, 1903.

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## THE NOVA SCOTIA DENTAL CONVENTION.

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The thirteenth annual convention of the Dental Association of the Province of Nova Scotia, was held in the Queen's Hotel, at Annapolis Royal, N.S., September 2nd and 3rd, 1903. The officers elected for the ensuing year are: Dr. F. W. Stevens, President; Dr. James Primrose, Vice-President; Dr. L. St. Clair Saunders, Second Vice-President; Dr. F. W. Ryan, Secretary. The following officers, with Dr. H. Lawrence, constitute the Executive Committee. Dr. H. Lawrence was appointed to the position of Provincial Secretary of the Canadian Dental Association.

The report from the annual meeting of the Provincial Dental Board announced the officers elected in that body to be: Dr. Hibbert Woodbury, President; Dr. Geo. K. Thomson, Secretary-Registrar; Dr. A. W. Cogswell, Treasurer; Prof. Howard Murray, Matriculation Examiner; Members of the Board, Final Examiners. Halifax, N.S., was chosen as the place of meeting next year.

F. W. RYAN, *Secretary.*



## ST. LOUIS FRATERNAL DENTAL SOCIETY.

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*Whereas*,—The Fourth International Dental Congress, which is to meet in St. Louis, August 29th to September 3rd, 1904, under the auspices of the Louisiana Purchase Exposition, is to be the greatest event in the history of dentistry;

*Whereas*,—As the Fraternal Dental Society of St. Louis is progressive, and stands for the best in dentistry and its interests;

*Be it Resolved*,—That the Fraternal Dental Society of St. Louis heartily endorses the Fourth International Dental Congress, and tender it their aid and support as a society and as individuals.

W. L. WHIPPLE, *President, pro tem.*

E. E. HAVERSTICK, *Secretary.*

Unanimously adopted, September 8th, 1903.

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## INSTITUTE OF DENTAL PEDAGOGICS.

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The next annual meeting of the Institute of Dental Pedagogics will be held at Buffalo, N.Y., December 28th, 29th and 30th. A complete programme is being arranged, which will be exceedingly interesting. It will be published in full in the next issue of this Journal.

W. H. WHITSLAR, *Chairman.*

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## THE "HYA YAKA."

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The students of the Royal College of Dental Surgeons are now publishing a journal under the name of "*Hya Yaka*." The following are the editors and officers: Editor-in-Chief, Oliver N. Leslie; 1st Assistant Editor, Ernest A. Wessels; 2nd Assistant Editor, Alex. S. Elliott; Business Manager, Fred. C. Husband; Assistant Manager, Chas. A. Corrigan; Social Editor, G. W. K. Noble; Sporting Editor, J. S. Lappen; Graduate Editor, Dr. Wm. G. Wood; Non-Attending Undergraduate Editor, Horace Wood; Secretary, Geo. M. Gorrell; Treasurer, H. Ernest Beddingfield; Cartoonist, Rich. W. Hull.

## Reviews

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*Studies in Comparative Odontology.* By ARTHUR S. UNDERWOOD, M.R.C.S., L.D.S., Professor of Dental Surgery, King's College London; Member of the Board of Dental Examiners, Royal College of Surgeons, England; President of the Odontological Society of Great Britain, etc. London: Bailliere, Tindall & Cox, 8 Henrietta Street, Covent Garden. 1903.

This is one of several books recently published in Great Britain on dental surgery, which demand our special attention. The British dentist undoubtedly writes better on any of the subjects allied to dentistry than those of this continent, but not so well on manipulative procedures. This work is one of one hundred and fifty pages; broad in view-point, complete, concise, well arranged, well written, well printed, and well bound; just what is required by every dental student. No one can read such a work, even though he does not carefully study its detail, without having his general view of life and of the study of dentistry broadened. As with other publishers, there seems to be no Canadian agents mentioned. It is strange that such large publishing houses do not have agents in Canada, through which their publications may be ordered. There are over two hundred dental students in Toronto alone who need such a book as the one under discussion, and yet they cannot obtain it without ordering directly from London.

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*The Mycology of the Mouth.* A Text-book of Oral Bacteriology. By KENNETH WELDON GOODBY, D.P.H. (Camb.), L.R.C.P., R.C.S., L.D.S. (Eng.), Bacteriologist and Lecturer on Bacteriology, National Dental Hospital; Sen. Dental Surgeon, Seaman's Hospital; Honorary Lecturer on Hygiene of the Mouth, London School of Tropical Medicine; late Demonstrator of Practical Dentistry, Guy's Hospital Dental School. Published by Longman's, Green & Co., 39 Paternoster Row, London; New York and Bombay. 1903. Price, 8s. 6d.

For some years teachers of dental bacteriology have known that Dr. Goodby was preparing a work suitable as a text for teaching in dental schools. In fact many teachers have refrained from recommending a book to students until the present one was published. It is a most satisfactory book; not too



large, compact, and yet sufficient general principles of the subject given to make it of general use. Many dental text-books are so narrow in their scope that they seem to have no connection with the sciences at all. The contents, or sections, are: Classification, morphology, biology, sterilization, microscopical methods; methods of cultivation of bacteria, susceptibility, and immunity; pathogenic bacteria of the mouth, bacteria in caries, bacteria in tooth pulps, bacteria in pyorrhea alveolaris, bacteria only known to occur in the mouth; saprophytic bacteria; appendix. There are eighty-two well-chosen illustrations, and two hundred and forty pages. Apparently there are no Canadian agents. Such good works should be obtainable through some Canadian house, so that students who want them do not need to order from London.

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## Correspondence

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### RE PRECEPTORS.

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*To the Editor of DOMINION DENTAL JOURNAL:*

DEAR SIR,—Since no one more qualified seems inclined to reply to the article by "Common Sense," which appeared in your June number, I take the liberty of offering my humble efforts in defence of the gentlemen who, acting in the capacity of preceptors, have so ably assisted in exalting the dental profession of Ontario.

At the outset, I wish to make it clear that I do not claim that any system of education is perfect, but I do think that our method of training under a preceptor, coupled with a thorough college course, is the best method for developing practical professional dental graduates. No doubt we have around us dentists who are totally unfit to act in the capacity of instructor, but they are a small minority, with whom, evidently, our friend "Common Sense" has been so unfortunate to be closely associated.

A student, to a certain degree, chooses who shall be his preceptor, and surely the character of one so base in professional ethics as those pictured in the letter referred to, would be so well known that any young man has himself to blame if he applies to such a one for his office instruction. It is no crime to be articled to a dentist. A student is even more in bondage to the college. There he is not allowed to use his own judgment as to when he shall do his own work, or attend lectures, and even in the summer course which "Common Sense" proposes, he

distinctly says, "let three Spring courses be compulsory for each student." Now, if it is honorable to be bound to do specified duties at the college, why is it so shameful to fulfil the obligations fixed by college between student and preceptor?

It is true that the profession of dentistry has its share of unprofessional conduct, even in some instances to a very lamentable degree, but why should this state of affairs be laid at the preceptor's door, when it is well known that the degree of doctor of dentistry is most shamefully dragged in the dust in countries where no such system of tutorship is exacted? A most prominent teacher of dentistry writes me that "the Canadian dentist ranks above all others in integrity, decency, and professional conduct." This to us should be a most pleasing statement, coming as it does from one who has an extensive knowledge of the profession in several countries, and on whom should it reflect more honor than the men who have honorably acted the preceptor's part?

Students now must have a fairly good education, but even with that they have a very vague idea of the outside world, and I do not think it would be productive of the best results that they should remain at college almost continually, summer and winter, during their course. In other professions it is considered the better way that students spend their summer months as closely in touch with what their future years are to be devoted to as possible. Why should it not be equally so in dentistry?

I am sorry that "Common Sense" takes such prominent exception to the students having to do janitor's duties and coarse work of the office laboratory, for I have great admiration, and bespeak a brilliant future, for the young man who is not ashamed to do such honest work, especially when it may save a little of his parent's money, and also make his services so valuable that his preceptor will take pleasure in instructing him. I would like here to answer the question, "Is this the course to breed a professional gentleman?" by saying that I have never known the faithful attention to menial duties to mar the gentlemanly traits in any one.

I am glad our friend gives us a description of what he thinks preceptors should be like: "Those who speak, practise, study, read, and write in elegant professional style," but he adds that such preceptors have not time to instruct students. Well, I will have to agree with him on this point, for I do not think I am acquainted with any so qualified. With all due respect to the lecturers and instructors during my course, I was, and am still, blind to the fact if any of them are so accomplished. Perhaps there are some available for the summer course.

But, now, here is where the present system is most admirable, for when he is alone with his student, a plain, honest, un-



pretentious dentist can explain, instruct, and guide his young friend, even though it would be impossible for him to convey his ideas to a class in "elegant professional style."

It is not necessary that the operation on every patient at the office should be used as a clinic, but I can assure my friend that, when a young man makes himself deserving of a preceptor's time by a faithful attention to the minor duties of the office, the dentist will find sufficient cases to give him proper instruction and practice.

In this letter, for the first time, I learn that some look upon the preceptor system as a safeguard against overcrowding the profession. It never appeared to me in that light. I have always thought, and think so still, that it is the best means of giving a student a sound practical dental education. Nor have I ever heard of a case of a clever man who might now be an ornament to the dental profession, had he not in his youth been so self-respectful that he would not condescend to suffer the humiliation of being articulated as a student in a dental office.

Perhaps "Common Sense" has told us all the bad things he can about preceptors and I would ask your indulgence a little further to briefly describe some of the good points in our present system:

It is very practical.

It is less expensive for the student than a summer course would be.

The student has an opportunity of cultivating a personal friendship which will be of great assistance to him during the early years of his practice.

During the summer the students have the pleasure of living at or near their homes, and as most of them come from the towns and country, they have an opportunity for engaging in more healthful pastimes than if they lived in the city. This question of health is most important, as the summer course proposed by "Common Sense" would come at a time when the students are thoroughly worn out with the winter's term.

There are many theories advanced in lectures and text-books that the student will find are quite impracticable in practising his profession in certain localities, and he has now the advantage of comparing what is taught him each winter, with the methods employed in his preceptor's office, and choosing what he thinks will be the most beneficial. The good methods learned, and the moral principles that have become so firmly fixed during his college term, will surely follow him to his preceptor's office, be it even as bad as those described by "Common Sense." He will not only arise superior to his preceptor, but he may also have the delightful satisfaction of drawing his teacher with him.

Yours truly,

"GRATITUDE."

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The above is a correct list of the dental organizations of Canada, with Presidents and Secretaries, so far as they are known to the Journal. It is the intention to keep a list of the officers of all Canadian societies in the Journal, so where there are omissions or errors please notify the Editor, who will make the correction, and as far as possible keep a corrected list, which will be of great value to the organizations.



# Dominion Dental Journal

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93 COLLEGE STREET

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*All Communications relating to the Business Department of the Journal must be addressed to THE NESBITT PUBLISHING COMPANY, Limited, 44 Adelaide Street West, Toronto, Canada.*

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VOL. XV.

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## GRADUATES IN DENTISTRY, PHARMACY, AGRICULTURE AND MUSIC SHOULD BE REPRESENTED ON THE TORONTO UNIVERSITY SENATE.

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By the recent federation of Toronto and Trinity Universities the Senate of the Provincial University is increased in numbers. It is said that the Senate is too large and unwieldy a body. Two years ago the Legislature undertook to reduce its numbers; this brought so many protests from the bodies represented that the matter had to be abandoned. Since the number cannot be reduced, but, on the contrary, is likely to be increased, it should be made representative of all the interests it assumes to adjudicate upon. An institution which gives its graduates some voice in its management should treat them all alike. Every graduate of the University should have equal voice in the election of a senator. Graduates in music, dentistry, pharmacy, and agriculture, are not represented on the Senate. It will not do to argue that the official heads of the institutions from which these men graduated represent them on the Senate, because these gentlemen represent the

affiliated colleges, and were appointed before there was a graduate, and are not appointed by graduates, and, therefore, can in no sense be their representative on the Senate. Another argument that may be used against the representative of these departments on the Senate, is that the graduates were never in actual attendance at the University in a department over which the Senate has absolute control. This will not do either, because a student may take his course in medicine at McGill, and take his degree of M.B. from Toronto, and in such case be given full rights, as a graduate of Toronto, to vote for the election of a senator, and was never in attendance at the University for one day. The fact remains that the Senate of Toronto University is not representative of all its graduates, while it should be. It is the Provincial University, and should be the head of every department of education in Ontario, and should represent every educational interest. Each separate department not now represented should elect its own senator, according to number of graduates, on the same basis as medicine, law, arts or engineering. In the four departments there are fully one thousand graduates not represented; and still many people wonder why there is not more interest taken in the Provincial University. The fact is, not even all her own graduates are allowed to take an interest, not to mention those outside.

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### Editorial Notes

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EVERY man should be true to himself.

No truly great man is ever surprised.

THE first number of "*Hya Yaka*," the dental students' journal, will appear this month.

ANOTHER dental college has been opened in St. Louis, with scores of professors, teachers, instructors and demonstrators. Dr. Burton Lee Thorpe is dean.

THE many friends of Mr. Craig, the manager of the S. S. White business in Canada, will be sorry to hear of his recent illness, but glad also to know that he will be back to business in a very short while.

DR. FRANK A. GODSOE has been appointed to represent the Dental Council of New Brunswick at the second annual meeting of the Canadian Dental Association, to be held in Toronto, August or September, 1904.



THE Royal College of Dental Surgeons opened October 6th with an attendance of one hundred and eighty-eight; thirty-three freshmen, ninety-three juniors, sixty-two seniors. As this is the first of the four years' course there is necessarily a falling off in the first year.

THE writer of a recently published article wishes the readers of his article to call upon some of the prominent gentlemen of his city to verify his statements as to the effectiveness of pressure anesthesia. Why, certainly, we believe what he may say about anything. He need not publish testimonials from his patients. It is enough for an honest, truthful gentleman to make a statement of fact to be believed. Referring to unknown witnesses only throws a doubt on his veracity.

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## Miscellaneous

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### A PLEASANT EVENT.

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A little journey through the largest manufacturing pharmaceutical establishment on the continent, was the privilege afforded the members last month in attendance at the Canadian Medical Association, held in London, Ont., when Messrs. Parke, Davis & Co., entertained the physicians by taking them as their guests for the day on a trip of inspection through their mammoth laboratories at Walkerville and Detroit.

Those who partook of the courtesies and hospitality so generously afforded, will long hold the occasion in pleasant memory. A special vestibule train to and from London, a chartered steamer for a mid-day ride on the Detroit River and Lake St. Clair, and a banquet at the famous Russell House, were all planned in perfect order for the guests, and added largely to the day's enjoyment.

In this day of rapid expansion and unparalleled growth in commercial enterprises, the extent of the laboratories proper, covering about fifteen acres of space, and the progressive work done by this army of 1,800 earnest, contented workers in pharmaceutical lines was not such a great surprise to the visitors. It was, however, unusual and little short of marvellous to find a commercial house ready and willing to invest capital to the extent of \$200,000 in a separate laboratory, where purely scientific investigation is conducted. The constant wonder of the visitors was, how remarkable that a commercial house should set aside such a large amount for the construction and perfect

equipment of a scientific laboratory, where purely research work is conducted in the fields of chemistry, biology, bacteriology, pharmacology, and experimental physiology and serotherapy. Besides, this firm has always been a pioneer in seeking out and developing new products, and new methods of making them available. They were the first manufacturing pharmacists to test remedial agents physiologically, and the methods instituted by them are now followed by many other houses, as well as scientific laboratories in the various prominent American universities. In fact, few of our great educational institutions, which are endowed with millions, possess such excellent facilities for purely scientific work. Throughout the entire establishment there is a scientific atmosphere, and the careful work affords no suggestion whatever of commercialism. Passing through the various rooms, the thought occurs over and over again, that this firm well deserves the high esteem in which it is held by physicians and druggists, for this reason, if for no other, that they are ever adopting newer ways and means for the perfecting of remedial agents, particularly as much of the work in which they are engaged must, from the very nature of things, prove unremunerative.

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IN the advertisement of the Buffalo Dental Manufacturing Company *re* Lewis Pluggers, in our September issue, a footnote was added by mistake, giving the impression that the pluggers were sold at higher prices in Canada than those stated in the advertisement, on account of duty. We beg to correct this; they are sold at exactly the same price in Canada as in the United States.



# Dominion Dental Journal

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VOL. XV.

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No. 11.

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## Original Communications

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### DEVITALIZATION OF PULP, REMOVAL AND SUBSEQUENT TREATMENT.

—  
BY G. F. BELDEN, D.D.S.  
—

Read before the Toronto Dental Society, October, 1903.

I feel that someone else should have had this paper to-night, as I have nothing new to offer on the subject; but, instead, something which may seem very ancient to a great many.

The member of the Programme Committee who asked me said it was not so much the paper or what it contained as the mere opening up of the subject for discussion that was wanted, so I consented.

When a case is presented to me in which I think it necessary to destroy the pulp, whether it be a good live one or partially so, I proceed somewhat after the following manner: I first isolate the tooth, either with the rubber dam or rolls of cotton, and dry the cavity with cotton and warm air. After that is done, the cavity can be excavated with less pain than when damp. If it is then very sensitive I use a solution of carbolic acid and cocaine crystals as a local anesthetic, dip a small pledget of cotton in the solution and place in the cavity, leave for a few minutes and then proceed to excavate, which can now be done with a great deal of comfort to the patient and pleasure to myself, as that solution will work wonders in a cavity of that nature.

Expose a very small point of the pulp and, if possible, do it without causing any bleeding, as the application works much better when blood is not present. Then pick up a few fibres of cotton, and roll into a small ball about the size of a pin-head, dip in oil of cloves, and dry a little by pressing another pledget of cotton upon it. I do this so that, later on, when I am sealing it in the cavity, there will be no danger of the oil of cloves oozing out and carrying with it the arsenic.

Now take the small pledget and merely touch the arsenic, taking up just the smallest amount, as that is all that is required, and, by the way, since Dr. Evans was here, I use even a smaller amount than before, and find it just as efficient and much less liable to get out of the cavity and cause trouble; in fact, I cannot remember when I had any trouble of that kind.

Now place the arsenic directly on the point exposed, place over that a small pledget of cotton, and seal in with gutta percha, the kind made up in base-plate form. I use that, as I find it finer and can be sealed more securely into the cavity than the form generally used for filling material. Have the patient return the following day, isolate the tooth again, remove the filling and excavate, opening up into the pulp chamber sufficiently to give free access to root canal.

Use the non-breakable broach manufactured by the Kimball Co., Chicago. They are extremely pliable, and will go up into a very tortuous root canal, and work better than anything I have used. This broach is made corkscrew style and by working and twisting gently up the canal, the pulp becomes so entangled in it that when the broach is withdrawn, the pulp comes away in almost every instance intact, and makes the extraction of the pulp a very nice operation. After that, use a very small barbed broach, and wind on a few fibres of cotton and wipe out the canal. If the canal is very sensitive, I use a solution of cocaine to wipe it out with, which will soon do away with any pain. Some dentists object to that being used, as they claim there is often bad after-effects, but the patient approves, and I therefore use it. I have failed to discover any bad effects from its use.

After the canal is dried, pump in oil of cloves. Do this by means of the broach wrapped with cotton. When you think you have saturated the canal sufficiently, seal up with gutta percha and have patient return in a couple of days, unless you decide to treat and fill at the one sitting. The amount of irritation in the tooth, the surrounding conditions of the mouth, together with the general health and condition of the patient, will generally decide that last point.

If there is very little if any irritation in the tooth, and the patient is in a good healthy condition, able to throw off any irritation that may arise from treatment, fill at once; but if the patient is rather susceptible to almost anything and the conditions of the mouth are bad, treat two or three times. I do not believe in lengthy and prolonged treatments of even putrescent pulps.

When it is decided to fill, isolate the tooth again, remove gutta percha, and pump in oil of cloves. I use cloves because I find it a thorough disinfectant, and not so irritating as many



others, as it will not penetrate the tubuli of the tooth to such an extent as oil of cinnamon.

After you have treated it sufficiently with the oil of cloves wipe out the canal again and pump in formapercha or formagen, whichever you may decide to use. I find both of them good; the latter particularly so, as I have used it for a number of years with great success. Its disinfecting qualities are very lasting. The former I have not used so long, but I believe it good, and in the treatment and filling of putrescent pulps almost indispensable.

Then mix cement to a good working consistency, place in the cavity, and with the aid of a set of instruments, fill in the canal. The instruments I use are long and very flexible, and of different sizes, so one can be found to fit almost any canal or any part of it, for that matter. I commence by using the smallest, and as the cement is placed in the cavity over the canal, I have it ahead of the instrument, each time going to the end of the root or as near as possible, being careful not to force the cement too hard. Allow the air sufficient time to escape to prevent pressure at the end of the root. As the root fills up, I use a larger instrument until the whole canal is filled by working quickly, and keeping the instruments always highly polished, more cement can be placed in a root canal, and the root more perfectly filled than any method I know of. I have tried various other ways, but did not have the success with them I thought I should have, and always came back to the method above described.

I do not by any means condemn the other methods, for I think if I had been as careful with them as the one given I would have had better results. No matter what method of treatment we adopt in devitalization of a pulp, thoroughness in detail is one of the prime requisites, as I presume it is in any case.

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## FAC-SIMILE CROWN

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BY FRANK E. BENNETT, D.D.S., L.D.S., ST. THOMAS.

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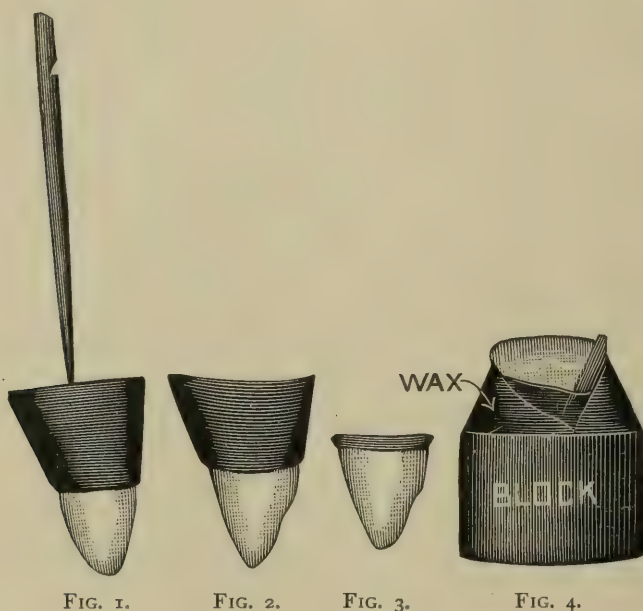
Read before the Elgin Dental Society.

*Construction of Fac-simile Incisor Crown, using Ash Swager.*—Trim your plaster model, and insert an old bur in it, as in Fig. 1. Now take an impression of this model in Mellott's Mouldene, and pour with Mellott's metal. (The old bur will act as a handle in moving cast from mouldene, and avoid changing shape of impression.) We now have model Fig. 2.

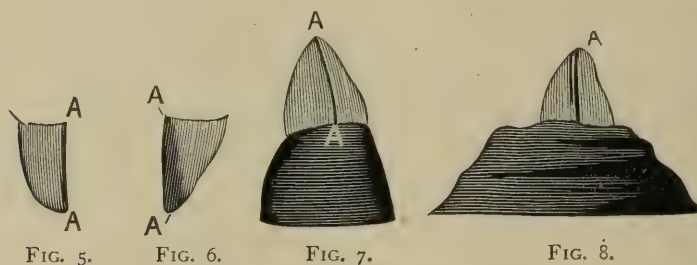
Now pour another Mellott's cast with just a little surplus,

as in Fig. 3, as cast No. 2 would be too large for the swager. Trim each metal cast to fit band measurement, having neck slightly smaller if anything. Mount smaller cast, as illustrated in Fig. 3, having cast one-half exposed, so as to allow the swaged sections to have surplus.

Now take your plate gold and cut out disc to fit swager. A good way to get size of disc is to take the concave side of swage-block and lay it on plate. Hit block slight blow and it will leave



1. Plaster Model. 2. Mellott's Metal Model. 3. Mellott's Metal Model. 4. Model 3 Mounted.



5. Front Section 1. 6. Back Section 2. 7. Sections Fitted to Mellott's Model.  
8. Sections Held in Place While Soldering by Mellott's Mouldene.

a nice mark on gold. Cut around this mark, and swage up gold as usual. This will give the front section, Fig. 5.

Remove the mounted metal cast, invest, and mount, swage, etc., as before. We now have the back section, Fig. 6. Fit and trim each section separately to Mellott's model, Fig 2.

Trim sections along line A—A, and grind until smooth, using the side of grinding wheel. Grind until each section butts and fits cast perfectly. It is better to take nearly all the surplus gold from the back section so as the soldering-line will be



well back towards lingual surface, then we will be more sure of solder not showing.

Remove the sections from cast. Take small piece of mouldene, and place section in it as in Fig. 8, being careful to have them in their right position. Now "borax" the soldering-line and place small piece of solder at point *A*, Fig. 8, and solder quickly. Remove crown from mouldene, and solder remaining portion. This makes a perfect fac-simile, and solder will not show.

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## ODONTALGIA.

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BY A. D. A. MASON, D.D.S., TORONTO.

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Read before the Odontological Club.

About the first problem that confronts the student or practitioner of dentistry is the relief of pain in or about the mouth. In the mouth most of the pains proceed from the teeth, either the deciduous or the permanent teeth, and of these the most frequent are caused by caries. Whether the dental pulp is devitalized or not, the beginning of the trouble can, in most cases, be traced directly to caries. Of course, there are other causes of pain in and about the teeth, such as traumatism, too rapid moving of the teeth by wedging, exostosis, mechanical abrasion, erosion of teeth from various causes, pulp stones, pulp nodules, and calcific growths in the pulp itself or on the walls of the pulp chamber.

Of these various causes of pain the one I wish to discuss to-night is that caused by the inroads of caries. This is generally the most severe kind of toothache we find, and when a patient comes to us suffering from this cause, he has generally been in pain for some time, and his main object is to get relief immediately. Now, we could all quite easily place some arsenic in that tooth, and with a smiling face tell the patient that if he would just endure it for a few hours (or, perhaps, all night) everything would be beautiful, and that would be the last time he would have pain in that tooth. I think, gentlemen, however, that we ought to do something more. It is our duty to relieve that patient even at the expense of a great deal of trouble to ourselves.

Sometimes it is difficult for us to locate the trouble exactly, but, having located the tooth which is causing the pain, the first thing for us to do is to wash out the cavity with warm water and remove as much of the debris as possible. Then apply the rubber dam to that tooth and "take it in out of the wet." Dry the cavity and tooth with absorbent cotton, and then we can

generally tell whether the tooth is devitalized or not by its color and opaqueness.

First, if the tooth is devitalized and enclosing a putrescent pulp, it must be opened and the gases allowed to escape. Relief will follow this procedure shortly, and often immediately. Counter-irritants will be of value here, such as hot metal placed on the gum, or heat applied by whatever means you like. The best counter-irritant, however, is aconite, iodine, and chloroform. This, as well as being a counter-irritant is a resolvent and anesthetic. Internal treatment will also help this condition, such as cathartics and sedatives.

The second case is where we have a pulp inflamed and congested. Now we will find this in various stages of congestion and exposure, and we will have to decide whether devitalization is necessary or not. If we decide to devitalize the pulp, we may first arrest the pain by puncturing the throbbing pulp and removing a drop or two of blood, which will relieve the excess pressure, and applying carbolic acid, or any of the essential oils, like cloves or cassia, or some drug that will soothe or anesthetize the pulp and stop the pain. Our outer dressing here should be water tight, as we do not wish the pulp to become infected by contact with the saliva. Sandarac, vaseline, or chlora-percha on cotton are probably the best, as it is necessary to have a dressing which can be applied without pressure.

Another method of stopping this pain completely and quickly is by using cocaine and pressure, and removing the pulp at this sitting. For the ten anterior teeth, both upper and lower, I think this is by far the best plan, as it saves time for the operator at future sittings, and is sure to give the patient relief.

Sometimes we wish to retain the pulp alive, and there are often sufficient reasons for this treatment as (1) where we wish to retain the color; (2) in deciduous teeth; (3) if the pulp is alive we do not worry about alveolar abscesses on that root. If this is our procedure, carbolic acid and all substances which burn and are escarotic in their action, or that coagulate albumen, must be eliminated from our treatment. Only agents which are soothing, and have resolvent and anesthetic properties must be used. The best of these for this purpose are the essential oils or campho-phenique; and, if these do not relieve the condition, removal of the pulp is the only alternative. Cases where we wish to cap the pulps will not, as a rule, be troublesome, but will yield readily to treatment. If they do not I am afraid the death of that pulp is not far distant. Counter-irritants will be of value here to draw the blood to the surface, and relieve the pressure in the pulp itself.

The last resort for the relief of our patient is to extract the tooth, but this is the extreme treatment, and must be avoided if



possible. However, there are cases where extraction would be advisable such as where a tooth is of no use in mastication, having no occluding surface on which to bite and which would never be of use as an abutment to a bridge or artificial denture.

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## THE MUTILATION OF TEETH.

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BY DR. W. M. CARTER, SEDALIA, MO.

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Read before the Missouri State Dental Association.

For a number of years I have been convinced that there is a growing tendency among a large portion of the dental profession to border on recklessness in dealing with the natural teeth, and this conviction has been forced upon me by observing in my daily practice the evidence of shameful mutilation. Therefore I have about come to the conclusion that the true value of the natural teeth has been lost sight of, doubtless owing to the skill that has been acquired in crown and bridge work and the field that has been opened for larger fees than could be acquired in any other class of dental service.

Is it possible that a dentist could so stultify his conscience that he would wilfully mutilate teeth that could be filled, simply for the extra remuneration he might receive? Or is it a lack of skill in knowing how to properly insert a filling? Or is it because it is easier to make gold crowns, or still easier to select them from a collection of ready-made crowns? These are questions I am unable to solve. Forceps and engines are necessary equipments for the office, but I fear that in the hands of many dentists they are often used as instruments of mutilation. Cutting off the crowns of teeth was thought a few years ago to be a risky business, and was never done except as a last resort; but now, with some, it appears to be a matter of little consequence.

There was very little crown-work done prior to 1878, and then the old-style pivot tooth with wooden pin was used. Thus, with the limited facilities for crown-work, dentists made a great effort to fill badly-decayed teeth, and some of those that were filled forty years ago are at the present time doing good service and stand as monuments in defence of filling and as a rebuke against the mutilation of teeth.

I think the strength of the walls of cavities is often underestimated. I have in mind a number of patients who were sent to me, being instructed by their dentists to have certain teeth crowned; but, exercising my individual judgment, I thought best to fill them, assuring the patients that, if necessary, I would

crown them later. To my surprise, ten or fifteen years have passed and these teeth are still in good condition.

Crown and bridge work seem to be a perfect mania with some dentists, and they cut and slash, mutilating the natural teeth as if they were of small importance compared with the artificial substitutes that they are to provide.

I wish to call attention to two cases that I recently had an opportunity to examine. I do not refer to these as rare cases, but in order to bring the subject more vividly before your minds: Mrs. B. had lost a second bicuspid several years ago, and consequently the space that had been occupied by that tooth had become very much contracted, leaving a very small space to accommodate a substitute. However, a dentist, noticing the loss of the tooth, insisted on making a bridge. She consenting, he cut down the first bicuspid and first molar, perfectly sound teeth, over which he placed two gold crowns, to provide the attachment for one little gold dummy.

The second case, Mrs. D., had lost a central incisor, and a dentist, as in the preceding case, advised a bridge, cutting down the central and lateral incisors, perfectly sound teeth, and placing over them gold crowns to hold the gold dummy.

I consider such mutilation of teeth inexcusable, and think any dentist should be ashamed to let such work go out of his office. Continually I am exasperated by seeing just such mutilation of teeth. I have heard dentists try to justify themselves for being guilty of such malpractice by saying, "Well, the patient demanded that kind of work, and I knew that if I did not do it, some other dentist would." That is a poor excuse and a fabric too thin to shield one from just criticism.

The work in a patient's mouth reflects credit or discredit upon the dentist, irrespective of the demands or desires on the part of the patient. Dentists are often induced to mutilate teeth for various reasons—sometimes to satisfy the whims of a class of people who think there is nothing half so beautiful as gold crowns placed on front teeth. I am often reminded of Miss Killmansegg, whom Hood so graphically described in his poem as spending her wealth to purchase a golden leg, and wearing her skirts tucked up about her knee so everybody could behold its beauty, thus satisfying her foolish vanity.

A few days ago a girl called at my office who had had two gold crowns placed on her lateral incisors—perfectly sound teeth—to satisfy a desire that she had long fostered; but after wearing them awhile she had grown tired of them, and wanted them removed and porcelain crowns placed in their stead. Her experience nearly paralyzed me, being so different from anything I had ever heard. Just think! after having her lateral incisors mutilated, she desired to surrender her precious gold crowns!

Some years ago, when artificial teeth seemed to be a fad,



women have been known to have their teeth torn from their jaws on the slightest pretext. I have known girls who, under the delusion that they would be made beautiful by wearing artificial teeth, were guilty of the same foolish act.

At the present time it is almost a daily occurrence to hear people try to console themselves by saying, "Well, I am not going to spend any money having my teeth filled; I will wait until they have to be extracted, and then I will get a new set that will not be a bother to me." I fear the dental profession is, in a measure, responsible for the erroneous ideas entertained by the public in regard to the value of artificial teeth and crown and bridge work. I make this broad statement because patients tell me continually how perfectly lovely, prominent dentists have told them, that kind of work would be, and they are seemingly elated over the prospect of having artificial substitutes, far superior to their own natural teeth.

Mutilation of teeth is often practised in the preparation of cavities. I have seen small approximal cavities made into large compound fillings extending far over the grinding surface of bicuspid and molars; when, if time had been taken and the teeth had been properly prepared, there could have been a great saving of tooth structure and fillings that would have been almost unnoticeable; as it was, they were very unsightly. Much of this is occasioned by the dentist trying to get through with the patient at one sitting, and thus being compelled to cut away much valuable material. It should always be remembered that in such cases haste makes waste; and waste, under no circumstances, of unimpaired tooth structure is admissible.

I believe a great deal of the so-called "extension for prevention" should be called "extension for convenience." I do not believe in the mutilation of teeth for the possible prevention of future decay. Time enough to cross the river when the bridge is reached; sufficient unto the day is the evil thereof.

When dentistry is practised as prescribed by the Golden Rule there will be marvellous changes. My colleague who condemns clasp plates, but wears one in his own mouth, not willing to sacrifice that good cuspid and first molar for Richmond crown attachment for a bridge, will make a small clasp plate for his patient like the one he wears. Another, who advocates cutting off the crowns for bridge attachments, but in his own mouth wears two open-faced crowns, will do the same for his patient; and he who advocates nothing but gold for a permanent filling material, and has his own teeth and those of his family filled with amalgam, will kindly save many a poor person much of his hard-earned wages by occasionally filling his teeth with the same material; and he who advocates extracting teeth when affected by pyorrhea, but ardently strives to save his own, will also remember his patients.

My paper may seem pessimistic, it is true, but the bright side needs no retouching; and if my thoughts as I have conveyed them to you lead some one to be more conservative in his practice, I am sure my remarks have not been in vain.

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## Selections

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### A DANGEROUS FEATURE OF ARSENICAL PASTE

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We have had brought to our notice during the past year several cases of loss of individual teeth with accompanying necrosis of the alveolar walls as the result of a mode of treatment which, because of its dangerous character, should be avoided. We take occasion, therefore, to here direct attention to the matter, believing it to be of sufficient importance to merit consideration by all conservative practitioners of dentistry.

The history of all the cases is the same in their essential features: The patient presents for relief of odontalgia from an exposed pulp, an arsenical application is made, and later removed, but for various reasons the devitalized pulp is not extirpated—either from lack of time, inaccessibility, or because the operator deems it unnecessary; so an application of mummifying paste is made and the case dismissed with a temporary stopping—or, as in one case, with a permanent metallic filling. In a period varying from one to three weeks the patient returns with a history of continued dull throbbing pain, swelling and tumefaction of the tissues about the socket of the treated tooth, the pain extending deeply into the jaw; and in two instances the patient has returned to the dentist with the tooth removed, it having been dislodged by the fingers of the patient or fallen out as the result of the inflammatory process set up by the previous pulp-treatment. In one case the irritation to the deep tissues of the jaw continued for weeks after the tooth was exfoliated, and the attendant pain was a constant source of distress during the whole subsequent period of repair. An investigation of these cases reveals pretty clearly the nature of the disturbance, and points definitely to the danger of sealing permanently *in situ* these arsenicalized pulps, even when protected from putrefactive changes by so-called mummifying or tannifying pastes.

It has been shown by careful experimental research that when arsenious acid is applied to the dental pulp a considerable portion is absorbed by the proteid elements of the pulp tissue and by the hemoglobin of the vascular supply to the organ. These proteid compounds of arsenic are in relatively weak chemical combina-



tion, and in the course of a short time, if the poisoned pulp tissue be not promptly removed, the arsenic is liberated by the breaking down of its proteid combination first formed in the pulp, and is diffused throughout the structure of the root until it sets up an arsenical necrosis in the pericementum.

One of these privately reported cases was treated, after an arsenical application, with a mummifying paste in which formaldehyde solution of 40 per cent. was the excipient used to convert the other ingredients into a workable paste. It is possible that in this case the formaldehyde may have contributed to the loss of the tooth, but that it was directly responsible therefor is disproved by the fact that the same result has occurred when other mummifying pastes without formaldehyde have been used to seal in place an arsenicalized pulp. We must, therefore, attribute the result primarily to the retention of the arsenic-saturated pulp tissue, through it is highly improbable that the ingredients of the mummifying pastes in general, by virtue of their affinity for proteid matter, upon which their tanning property, or their power to bring about the fixation of animal tissue depends, contribute to the result by liberating the arsenic from its original proteid combination in the pulp, thus setting it free to diffuse itself throughout the tooth, and to work out its destructive results upon the retentive tissues.

Arsenic as a pulp-devitalizing agent has served a valuable purpose in dentistry as a pain-relieving medicament, and it has undoubtedly been the means of enlarging the possibilities of conservative practice. It is equally true that its careless or injudicious use has caused the destruction of many teeth, and in not a few instances more or less extensive necrosis of the jaw structures. Greater knowledge of the properties of the drug has taught us a greater conservatism in its use. It is not many years ago that arsenical applications were made for the relief of hypersensitive dentine, until the sad experience of its tendency to devitalize pulps when so employed taught the wisdom of avoiding its use for that purpose. While we would not, with our present knowledge, take the ground that arsenious acid may not be safely used for pulp-devitalization, yet, considering on the one hand that it is a dangerous agent unless used with intelligence and caution, and on the other hand that strictly surgical methods of pulp-extirpation are now possible without pain under cocaine anesthesia, it would seem that we are about at a point where the old and avowedly dangerous method of pulp-destruction by arsenical paste should be relegated to the lumber-room of abandoned methods of dental technique, and the safer and equally satisfactory modern methods of pulp-extirpation by surgical means be substituted as the accepted mode of practice.—*The Dental Cosmos*.

## MOUTH-BREATHING--ITS INJURIOUS EFFECTS.

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BY JOHN O. ROE, M.D. ROCHESTER, N.Y.

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There is no perverted function attended with so many ill-effects, and none persisted in so continuously and with as little concern, as that of mouth-breathing. In proof that man was intended to be a nose-breather we might cite the authority of divine writ, when it says, "The Lord breathed into his nostrils the breath of life," which shows that the ancient Jews had a proper conception of the nose as a divinely-appointed organ of breathing.

The scientific proof that man was intended to be a nose-breather is deduced not only from the ill-effects resulting from mouth-breathing, but also from the important physiological functions that the nose performs in the animal economy.

The four principal functions performed by the nose are that of smelling; that of filtering or separating from the air we breathe foreign substances; that of imparting moisture to, and that of modifying the temperature of, the respired air.

The sense of smell performs a most important physiological function in protecting us from the poisonous emanations that contaminate the air. Without the sense of smell, the absence of which in our cities might frequently be regarded as desirable, we might unconsciously fail to be warned against unsanitary conditions, such as the escape of illuminating gas in our rooms, coal gas from our furnaces, noxious gases from our sewers, all of which are deadly poisons, as illustrated by the frequent deaths from such causes. Thus when the sense of smell is destroyed by diseased conditions, or the nasal passages are obstructed, we not only lose the protection which this sense gives us, but we are denied the pleasures of delightful odors, as well as the savory flavors of our foods and wines, which contribute much to the happiness of life, and thus indirectly to the health of the individual.

The part that the nose performs in straining the air of dust, germs, and other foreign substances is a very important one. for air, containing, as it does, germs in large quantities, is freed from them when it reaches the windpipe, while the front part, the vestibule of the nose, is found swarming with these germs that have been arrested there. The importance of this is further shown by the fact that there is contained in the amount of ordinary air in our densely populated cities inhaled during one hour from fifteen hundred to fourteen thousand germs, and also by



the fact that this air, after passing through a normal nose and reaching the lungs, is entirely freed from these germs. The office of the nose in filtering the air, and thus excluding dust and other foreign substances from the lungs, is consequently of the greatest importance in the prevention of pulmonary diseases.

The imparting of moisture to the air, when too dry for respiration, is also a very important function of the nose. The irritating effect on the throat and lungs of too dry an atmosphere is generally understood, and for this reason various devices are in use for imparting moisture to the furnace-dried atmosphere of our houses. Persons who breathe through the mouth, however, suffer from irritation of the throat and lungs from this cause in a much greater degree than nose-breathers. This is accounted for by the fact that in a dry atmosphere during each twenty-four hours about five thousand grains of water, or over ten ounces, are by the vascular tissues of a normal nose imparted to the air that passes through it on its way to the respiratory organs below. This supply of water given out by the nose is, however, regulated by the vasomotor or sympathetic nerves so as to meet the requirements in different cases, since the supply is varied according to the different degrees of humidity of the atmosphere, also according to the readiness with which the nasal supply itself is taken up by the air as it passes through the nose.

Moreover, the temperature of the inspired air is modified, so that by the time it reaches the lungs, no matter how extreme the heat or cold of the atmosphere may be, it is brought to a healthful temperature for inhalation. We can, therefore, very readily understand the ill-effects that sooner or later must be caused by mouth-breathing, in consequence of which we fail to obtain the benefit of the physiological functions that the nose performs. With the substitution of oral for the normal nasal respiration the air we breathe has no filter with which to free it from dust and germs, nor is the air modified by having moisture and warmth imparted to it. As a result of mouth-breathing the throat becomes dry and irritable, the larynx irritated, attended with hoarseness and cough; the person is made more susceptible to colds, and a general catarrh of the throat and bronchial tubes and often asthma are caused thereby. Nor does it stop here. The deeper air passages and lungs thus irritated and diseased become an excellent feeding-ground for the consumption germ, and consumption is but the natural and frequent termination of this condition.

Mouth-breathing, therefore, may be regarded as one of the principal predisposing causes of consumption, while nose-breathing is the natural safeguard for its prevention. In children, and in adults too, various spasmodic affections of the larynx are induced by this long-continued irritation. The distressing and often alarming condition of spasmodic croup, or laryngismus

stridulus, coming on during the night is almost invariably the result of mouth-breathing. Persons who breathe through the mouth do not experience the delights of "Nature's sweet restorer, balmy sleep."

Few people who breathe habitually through their mouth during the entire night will admit or believe that they do so or that they snore, because they are convinced that they go to sleep with their mouth closed and instinctively close it on waking; but the fact is, nevertheless, verified by the dry throat, parched tongue, bad taste in the mouth, general lassitude, and lack of the refreshed conditions of the nose-breather. There are none, however, that suffer so much from this perverted function as children. The first inspiration of a new-born babe is through the nostrils, and cases are known of infants suffocating because the nostrils were occluded. Mouth-breathing, therefore, is an acquired habit; and man and his boon companion, the dog, who occasionally tries to imitate his master's example, are the only animals that acquire this habit, the injurious effects of which should be more widely known and guarded against.

It is a singular fact that the North American Indians are more alert to prevent this perversion of a normal function than their civilized brethren. Among the earliest tribes of American Indians it was found that nasal respiration was religiously cultivated from the instant of birth, and the Indian mother watching over her infant, no matter whether asleep or awake, invariably closed the infant's mouth, so that Nature's law might become a fixed habit throughout its life.

The disturbing effect of mouth-breathing during sleep is clearly illustrated by the tossing about of the person or the child at night in the effort of Nature to obtain more air, which is always deficient in amount in mouth-breathing. From this cause alone much anemia, debility, neurasthenia, and nervous prostration result.

The injurious effects of mouth-breathing are not only emphasized by the conditions already enumerated, but in children its effect is very apparent in their development. From this lack of air and of oxygen the child's growth is impaired. The chest is imperfectly expanded and prevented from obtaining its normal dimensions, and thereby becomes abnormally contracted. The condition termed "pigeon" or "chicken-breasted" results from this cause. The abnormal physiognomy of the child resulting from its continued open mouth is also very pronounced. Not only does the child acquire a vacant, idiotic expression, but the nose and also the central portion of the face fail properly to develop. The nose thereby not only remains small and contracted, but from lack of use, like an abandoned road overgrown with weeds and bushes, the nasal passages become filled in and obstructed. The end of the nose frequently becomes abnormally



enlarged, and the condition termed "pug nose" results. It is also observed that the development of the brain is markedly interfered with from its dependence upon the development of the central portion of the face.

The influence of this habit on the teeth is also marked, for during development the constantly closed jaws make them assume a regularity which is rarely seen in mouth-breathing children, but which is a feature to be admired in the Indian, who has the most beautiful mouth in the world.

From the lack of development of the nose the arch of the hard palate, or roof of the mouth, also becomes abnormally high, compelling the incisors, or front teeth, to project unduly, a sign altogether too frequently seen of the parents' neglect to properly attend to the conditions necessitating mouth-breathing during infancy and childhood.

Catlin, in his observations of the native races of North America attributes their fine physical development quite as much to their habits of nasal respiration as to their outdoor life. He says, "The Indian warrior sleeps and hunts and smiles with his mouth shut, and with seeming reluctance opens it even to eat or to speak." In summing up his observations on this subject, he says, "If I were to bequeath to posterity the most important motto which human language can convey it should be in three words, 'Shut your mouth.' " The truth of this motto cannot be too forcibly impressed upon the minds of all.—*American Journal of Nursing*.

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## THE TECHNIC OF MATRIX MAKING.

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BY W. T. REEVES, CHICAGO.

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Platinum one one-thousandth of an inch in thickness is what I have always used and it has several points that make it superior to platinum one two-thousandths of an inch in thickness. The very fact that it requires more work and care to burnish into the cavity will cause a more perfect matrix to be made when the work is accomplished; also it will have more stability and reduce the danger of warpage, while baking the porcelain, to the minimum.

The burnishing of the matrix I divide into four divisions or steps; needless to say, that the burnishing at each step is repeated until accomplished, annealing each time the matrix is returned to the cavity. A piece of one one-thousandth inch platinum is cut large enough to extend well beyond all the margins other than the cervical margin. After annealing in the

Bunsen flame, place in position so that the surplus will be about equally distributed beyond the margins of the cavity. Take a piece of wet cotton or spunk, and place so as to depress the platinum into the cavity, using a minimum sized round nosed burnisher, and adding additional pledgets of the wet cotton as the platinum is carried to place, care being taken that at no time are you in danger of the burnisher going through the cotton. At this step you do not attempt to turn the platinum over the margin. Remove the cotton and matrix from the cavity, and if your packing has been thorough, you will find the platinum has been carried to every part of the cavity, and your margins are fairly well defined, with little or no danger of breaking through the platinum. If you have broken through the platinum inside the cavity, no harm will result as the body will bridge across without danger of flowing through. If you have any surplus at the cervical margin that will press upon or hurt the gum while burnishing, trim away at this time. Anneal and return to the cavity for the second step.

Pack partially full of wet cotton, but not over the margins; then, using any method which is easiest, turn the platinum over all the margins and down upon the tooth. To accomplish this I use a piece of ordinary twilled tape, passing it up so as to engage all portions of the platinum at once, then draw it in the direction that will cause the platinum to lap over the margins in all directions, thus bringing the folds equally distributed around the surfaces of the tooth, and fairly well burnish to the surface of the tooth.

Remove from the cavity, and if the platinum has lapped over the tooth far enough to bind and hold into the cavity, trim away until the matrix will remove from the cavity freely. Anneal and return to the cavity for the third step.

At this stage your work is entirely upon the margins. The platinum that lapped over on the tooth will enable you to hold the matrix into the cavity securely enough with your fingers for you to accomplish this work. All wrinkles or folds must be burnished out and beyond the margins in both directions. It matters not if the matrix springs from one part of the cavity while burnishing upon another, although you will endeavor to hold its place as firmly as you can; the next step will correct all faults of that nature.

I use the burnisher so that the head bears upon the margin cavityward and the shank upon the margin toothward; in this manner you will burnish every portion of the margins until you are satisfied with their adaptation to the tooth. Also burnish the interior of your cavity so that your matrix will have as close adaptation in the tooth as at the margins.

It may be necessary for you to anneal several times before



you complete this stage of the work, but do not leave this stage until it is thoroughly completed.

Now the last and final burnishing. For this burnishing I use a strip of rubber dam, which is drawn tightly and binds the matrix into the cavity in all directions. You can now go over all the margins and surfaces and burnish out all the spring there may be in any part of the matrix. It is not necessary to spend as much time in burnishing at this stage as you did at the previous stage. You had practically secured your close fit before you came to this last stage, consequently, about one-third of the time spent will be sufficient to give you close adaptation of all parts of the cavity and walls of the tooth.

Then comes the task of removing the matrix from the cavity without warping it. By patient and careful teasing you can accomplish this without any warping; if you are afraid that you have sprung it ever so slightly, dry out the cavity and dry the matrix; place it in the cavity, and use the rubber dam again; this time it will tease out easily. The capillary attraction of the saliva between the matrix and the tooth will often hold it very tightly. Grasp the edge of the platinum at some point as far removed from the margin as possible, and where there is no fold to make it rigid, with a pair of laboratory pliers that you can lock; burn off the saliva in the Bunsen flame to avoid any possibility of gassing. The matrix can now be handled freely in building in the porcelain, for the bending of the platinum will take place at the pliers, and not near the margins. At this stage, if desirable, the patient can be dismissed, as there is no necessity of reburnishing any part of the matrix after having done a baking.—*Extract Dental Review.*

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## CROWN AND BRIDGE INVESTMENT COMPOUND.

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BY JAMES H. PROTHERO, D.D.S.

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To secure the best results in crown and bridge work, each individual step, from the treatment and preparation of the roots of the teeth to the final finishing and setting of the completed substitutes, should be performed with thoroughness and accuracy.

Failure to carry out any one step correctly impairs the value of the finished product, and just in proportion to the care exercised and the skill displayed in carrying out the details will the final results be satisfactory.

One fruitful source of error to which unsatisfactory results and failures can frequently be traced, is the use of unreliable in-

vestment compounds. The investment compounds furnished by the dealers are good, indifferent, and of very poor quality. Those prepared in the dental laboratory are no better, and some are more unsatisfactory than the poorest products of the manufacturers.

None fulfil all the requirements perfectly, and therefore it is necessary to select the very best that can be procured, and in addition exercise extreme care in the investment and soldering of assembled crowns and bridges.

#### REQUISITE PROPERTIES OF AN INVESTMENT COMPOUND.

First: It should set in a reasonable length of time.

Second: It should possess sufficient cohesion to retain its form when set, to withstand the handling incident to proper trimming and the removal of the wax, and to insure the firm retention in correct relation to each other of the assembled parts after the removal of the wax.

Third: It should not crumble or disintegrate under the blow-pipe flame.

Fourth: It should neither expand, contract, warp, nor crack.

Fifth: It should be composed of materials that are infusible at the temperature to which it will be subjected.

All of these properties mentioned are essential, for reasons that are obvious, but attention will be called to two or three that are of special importance.

The use of investment compounds that contract, warp, or crack when subjected to soldering temperature, is liable to result in distortion of the several parts to be united. When this occurs in bridge work, the correct relations of the abutment and pier crowns to each other are frequently so changed that the substitute cannot be set in position, or if it can be forced to place, the strain put upon the supporting roots is distressing, if not unbearable.

Investment compounds, as ordinarily made, consist of one or more highly refractory substances mixed in varying proportions with plaster-of-Paris. The latter is added to induce hardening and hold together the particles of refractory material.

Plaster-of-Paris, when used alone as an investing material, checks readily and contracts to a marked degree when subjected to high temperatures, and is, therefore, unsuitable for investments. For these reasons it should be used as sparingly as possible, to accomplish the object sought, when combining it with infusible materials which do not contract under heat.

The infusible base should be somewhat more granular in its nature than the plaster-of-Paris, so that the granular particles of the refractory substances may lie in actual contact with each other throughout the mass while the plaster-of-Paris fills in the interstices.



If the right selection of infusible base has been made and mixed in proper proportion with the plaster-of-Paris, the tendency to contract when heated will be nearly if not quite overcome. Too large a proportion of plaster-of-Paris will permit contraction to occur in the mass when heated, while too small an amount will render the compound brittle and unstable.

The fifth requisite mentioned is an important one. When substances such as certain varieties of sand or pumice stone are used in investment compounds that are to be subjected to extremely high temperatures, they frequently fuse and unite with porcelain facings, if any be present. Sometimes this is noticeable after the case has been heated, by the removal of the glaze from the porcelain, as if it had been etched with acid, and again the union of the investment compound with the porcelain may be so intimate as to entirely destroy the appearance of the latter. Investments of such a character should not be used in cases requiring the use of high-fusing solders, nor for bases or supports for porcelain crowns and bridges while baking the body.

Since none of the investment materials on the market fulfil all the requirements perfectly, many prefer to compound them in the laboratory as needed, of materials and by formulas that have given fairly good results. In order to do this intelligently it is necessary to have a clear understanding of the chemical and percentage compositions as well as the physical properties of the various refractory substances used for such purpose.

In this and subsequent articles, several refractory materials suitable for the purpose under consideration, as well as other uses, will be described. The first of these substances to which attention will be called is soapstone.

Talc, or soapstone, as it is commonly called is a magnesium silicate, the chemical and percentage compositions of the purest varieties of which are as follows:

Chemical composition	{	$H_2 Mg_3 Si_4 O_{12}$	
		or	
Percentage composition	{	$H_2 O 3 Mg O 4 Si O_2$	
		$Si O_2$ (silica),	63.5
		$Mg O$ (magnesia),	31.7
		$H_2 O$ (water),	4.8

Soapstone is so called from the soapy feeling noticeable in handling it. *Steatite* is another name given to one of the forms in which it occurs, from *steatitis*, a stone resembling fatty matter, described by Pliny nearly two thousand years ago.

This mineral occurs in nature in various colors, the purer varieties of which are gray, or grayish-green. It is an extremely soft material, ranking lowest, or 1, in the scale of hardness.

It is found in foliated, crystalline, granular, and amorphous conditions. Large bodies of it are found in various parts of the world, especially in the United States and Canada. It is com-

monly found in asbestos deposits, as well as isolated, while asbestos occurs much less frequently in soapstone deposits.

When heated to a high temperature, soapstone gives up some of its water of crystallization, becoming extremely hard, and in this condition is capable of taking a fine polish.

It is almost impossible in a short article to enumerate the many useful and curious uses found for this material. As before stated, it is extremely soft, and can be readily shaped or carved into any desired form. It can then be hardened by heating, given any desired color with metallic solutions, and polished. Imitations of engraved stones are made in this way so perfect as to almost defy detection. The Chinese and Japanese manufacture their household gods and many other curious as well as useful articles from it. Paints subjected to atmospheric, chemical, and electrical influences are made from it, since it is capable of resisting these influences to a marked degree. Stove and furnace linings are made from it, since it is capable of withstanding high degrees of temperature without disintegration.

Laundry tubs, blackboards, footwarmers, tailors' and iron workers' crayons are made from it. French chalk is nothing but pulverized soapstone. Since it is harmless and non-poisonous, French chalk is largely used as an adulterant of pulverized sugar, candy, baking powder, and in the manufacture of soap. It forms the basis of most of the complexion, and some of the tooth, powders on the market. Many varieties of electrical insulators are made from it, and while, perhaps, it is not as durable as porcelain for this purpose, on account of its brittleness when in thin plates and under stress, it is so easily wrought into any desired form, and serviceable under ordinary conditions, that it is coming into general use. The lava tip gas burner is turned from soapstone, the slot sawed, and then burned to harden it.

The idea recently occurred to the writer that serviceable bases or supports for crowns and bridges in porcelain work could be made from this material. Several different forms were shaped and put to immediate use. Up to date none of them has shown signs of disintegration or noticeable warpage or contraction. For this purpose alone soapstone ought to find a permanent place in the laboratory, just as it has for a long time been used in pulverized form for many purposes.

Since soapstone contracts to so slight an extent, when subjected to high temperatures, it can certainly be used in granular form to good advantage, for investment purposes. The results of experiments conducted with this material will be given in a subsequent paper.—*North-western Dental Journal*

(To be continued.)



## AMPUTATION OF ROOTS OF MOLAR TEETH.

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BY ARTHUR B. BLACK, B.S., M.D., D.D.S.

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There are two reasons for reporting the following cases of root amputation: to again call attention to the fact that many molar teeth, particularly the upper first molars, are extracted, and often the teeth on either side are crowned to support a bridge, when a comparatively simple operation would save these teeth for many years of usefulness; and to emphasize the fact that one of the most essential points in the treatment of these—as well as any other—cases is a correct diagnosis, which should be the indication for the treatment. When we find a molar tooth, one root of which has its peridental membrane entirely destroyed, there is a clear indication that that root should be removed, but it is not a sufficient reason for the extraction of the tooth. Of course, there may be other reasons that indicate the necessity of extracting. If we can amputate one root of a tooth and leave the crown standing on the remaining roots, in good condition, why should we not expect that tooth to last as well, or even better, than a bridge of four teeth supported by two roots. The lingual root of the upper first molar is the most favorable for amputation, as it often stands quite apart from the buccal roots and at a **considerable** angle from the long axis of the tooth. The buccal roots generally stand straight under the crown and give it good support. The operation is simple and not painful. I have removed several such roots without letting the patient know until afterwards what I had done. It is the practice of some men to replace these amputated roots with porcelain roots baked to the same size and shape. I can see no good reason for doing so, as the tissues will heal about the remainder of the tooth in a short time, and the cut surface can be so shaped that it will be self-cleansing. While the lingual roots are the most favorable for amputation, either or both of the buccal roots may occasionally be removed with success if the conditions are right. The removal of one of the roots of a lower molar is less apt to be successful, as the bifurcation is often deep down in the tissues. The diagnosis in such cases is simple. A pair of smooth thin flat slightly curved instruments are good for the examination. These may be passed between the root and the soft tissue to the point of attachment of the peridental membrane without causing the patient any pain. If the instrument passes to the apex of the root, it is natural to expect that the pulp of such a tooth is dead, and of course, the first step should be the cleansing of the pulp chamber and canals. Before deciding to amputate a root, we should examine the remaining roots carefully and know their condition. The bifurcations between the root to be amputated and the others should be deter-

mined. The nearer these are to the body of the tooth, the better the chance of a successful operation. In cases where the root to be amputated is united to another far up toward its apex, we could hardly expect a satisfactory result. The points of bifurcation can generally be readily determined by slipping an explorer, curved at almost a right angle, along the root until the bifurcation is reached and then in between the roots. A study of the positions and relations of the roots in a number of extracted teeth will be of material assistance in such cases.

Case I.—Patient, woman, age 35, presented September 17th, 1900, for treatment of upper left first molar, stating that it had given her so much pain while on a visit in the east a few weeks previously, that she had visited a dentist who treated it for several days and succeeded in relieving the pain, but the tooth had continued to be sore since. She reported that the tooth had been sore for several months. An examination showed a gold filling in the central fossa of the occlusal surface, with a hole about one millimeter in diameter through it, the hole being plugged with cotton; a cavity of some depth, although not sufficient to have exposed the pulp, in the distal surface. There was also a cavity in the mesial surface of the second molar. The gum on the buccal and mesial surfaces was normal, while on the distal between the first and second molars, it was much receded having been gradually pressed upward by food crowding through between the teeth; it had also receded somewhat on the lingual, particularly about the lingual root. A periodontal membrane explorer could be passed along the distal and lingual surfaces of this root to its apex. The membrane about the buccal roots was in good condition. The tooth was somewhat loose.

After placing the rubber dam, the cotton dressing and the occlusal gold filling were removed. The opening into the pulp chamber was enlarged so that a good view could be had of all parts of the pulp chamber. Some putrescent matter was removed, when it was discovered that the drill, which had passed through the occlusal filling, had continued through the pulp chamber and on through the tooth, emerging on the distal surface near the point where the disto-buccal and lingual roots joined. This hole was filled temporarily with gutta-percha. A putrescent pulp was removed from the lingual canal and a dressing of "I-2-3" sealed in this canal only with gutta-percha. In locating the canals of the buccal roots considerable secondary dentine was cut away, and the pulps were found to be alive in both. After soaking the pulp chamber with "I-2-3," an ethereal solution of cocaine was applied to the pulps in the buccal canals and they were removed. A dressing of "I-2-3" was sealed in and patient dismissed.

Here was a case where one might seem to be justified in resorting to extraction. The tooth was loose and had been so sore for months that mastication on that side of the mouth was pain-



ful, there was a hole through the side of the root, and the peridental membrane was practically all destroyed about the lingual root. It was decided to try to save the tooth by amputating the lingual root. Two of the things essential to make this operation a success, were present, viz., the membrane about the buccal roots was in good condition, and the points of union of the lingual with the buccal roots were sufficiently near the body of the tooth to enable me to cut off the lingual root from the body of the tooth only.

On the patient's return, the buccal canals were filled with gutta percha, the lingual canal with gold, and the occlusal cavity temporarily with gutta-percha. A bibevelled drill was then passed through the lingual root starting near the gingival line and directed for the junction of the other side of the root with the body of the tooth. A cross-cut fissure bur was then placed in this hole and cuts made to the mesial and distal, severing the root, which was removed with a large spoon excavator. The under surface of the body of the tooth was smoothed with a fissure bur, the cut surface having a decided slant from the gingival line on the lingual to its junction with the buccal roots, where the soft tissues were attached. In the centre of this area a nicely polished gold filling occupied the former root canal.

Subsequently the occlusal opening was extended to include the distal cavity, and as this cavity already involved a large portion of the distal surface, it was only necessary to extend it a little further to include the hole which had been drilled through the root. A matrix was fitted as closely as possible to this distal surface and an amalgam filling inserted. The removal of the lingual root gave a distinct advantage in placing this filling as there was sufficient room to enable me to get at the margins and be sure that they were smooth. A filling was subsequently placed in the mesio-occlusal of the second molar, and good contact obtained.

I have seen this patient a number of times during the past three years and the tooth is as firm as any, and she insists that she chews with it as well as ever she did.

Case 2.—Patient, woman, age 40, presented August 11, 1902, for treatment of upper left first molar. Stated that the tooth had been so sore for weeks that she thought it would have to be extracted. There was a gold shell crown, which did not fit about the neck of the tooth, pus was present and several drops were forced out by pressure on the gum over the mesio-buccal root. The tooth was loose. Examination of the peridental membrane showed the attachment of the lingual and disto-buccal roots to be in good condition, but the mesio-buccal root was almost entirely denuded. The gold crown was removed, revealing a tooth crown, from which a slight bit of enamel had been ground from the occlusal only. There was a mesio-occlusal cavity filled with

cement. This filling was removed and was found to occupy the pulp chamber also. The lingual root canal had been filled with gutta-percha; the buccal canals contained putrescent pulps, which were removed, and after treatment, the canals were filled. The mesio-buccal root was amputated, and on examination, a week later, the tooth was quite solid. A mesio-occlusal amalgam filling was inserted, instead of replacing the crown. It is necessary for this patient to do most of her chewing on this side and the first molar is doing its part perfectly. I examined it in June and it was in good condition, the gum perfectly healthy.

Case 3.—Patient, woman, age 33, presented with an abscess of two years' standing, discharging all the time, from a lower left first molar, upon which tooth there was a gold shell crown. This tooth had been under treatment occasionally during the time mentioned, and finally the patient was furnished with a small syringe and directed to irrigate the sinus herself, which she had done daily for several months. A sharp probe inserted into the sinus, which opened opposite the distal root, immediately came in contact with the distal root and could be moved about for considerable distance in all directions over its surface. There was a large pocket in the bone as a result of the continued suppuration. The extraction of this root was positively indicated. The mesial root seemed not to be involved, and I therefore decided to attempt to save it. The crown was removed, revealing a very badly broken down tooth crown. A rubber dam was placed in position and the pulp chamber cleared of all cement and gutta-percha. Imperfect fillings were removed from the canals of the mesial root and gutta-percha root fillings inserted. Then, while the rubber dam was still in place, the two roots were separated by a cross cut fissure bur, all the cutting being done at the expense of the distal root, thus leaving the cut surface of the mesial root convex on its distal surface, and without a shoulder at the point of attachment of the peridental membrane. After removing the rubber dam, it was easy to remove the distal root as it had very little attachment. The mesial root was smoothed on its distal surface, built up with amalgam and crowned. This crown has been in place several months and a recent examination showed it to be in good condition.

Case 4.—Patient, man, age 28, presented February 4, 1903, for treatment of upper right first molar. The peridental membrane about the buccal roots of this tooth had been under treatment for more than a year, during which time the tooth had been sore most of the time. There had been a constant slight discharge of pus. Examination of the peridental membrane revealed the fact that the buccal roots were almost entirely denuded, while that of the lingual root was in good condition. A probe showed a considerable amount of absorption of bone about the buccal roots including the floor of the antrum so that there was a small



opening into this cavity. Quite a little of the surrounding bone was soft—carious. This certainly looked very much like a case for extraction. I told the patient that there was a possibility of saving the tooth by amputating the buccal roots, and he was anxious to have the effort made. I opened through the occlusal and found, as we would certainly expect, a putrescent pulp, which was removed, and, after treatment, the roots were filled. The buccal roots were amputated, and the softened bone removed with curette and bur, leaving a considerable opening into the antrum. The wound was packed with iodoform gauze and irrigated every day or two for five weeks, using gradually less and less gauze, until the packing was entirely omitted. The wound healed nicely and the patient has since been able to use the tooth freely without being conscious that it is standing on one leg instead of three. It is surprising how firm this tooth is and how well it stands up to its work. It is well in considering such a case to note the direction of the lingual root at the time of cleansing the root canal. Of course, the more nearly the root stands under the tooth, the better the chance of it being able to support it.

Case 5.—Patient, woman, age 25, presented May 28, 1903, for treatment of upper left first molar. This tooth had been under treatment for several months for "pyorrhea"; and the patient was unable to chew on the left side on account of the soreness. Examination revealed a condition very similar to that in Case 1. The membrane about the buccal roots was in good condition, while that about the lingual was practically all destroyed. An explorer passed to and a little beyond the apex. Evidently it had not occurred to the previous operator that the pulp in that lingual root must be dead. There was a gold filling in the central fossa. This was removed and the pulp chamber opened. The pulp was dead, with the exception of a small portion in each of the buccal canals. Evidently the disease of the membrane about the lingual root had gradually extended from the gingival line to the apex, where it cut off the nerves and vessels, and the pulp gradually died as a natural result. After filling the buccal root-canals with gutta-percha and the lingual with gold, the root was amputated and the recovery was so rapid and complete that in four weeks from the time the root was amputated, a gold filling was placed in the occlusal cavity and malleted as hard as could be desired without causing any pain.

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## EUTHANSIA.

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That the world is seeking the solution of many knotty social problems in a way likely to make the orthodox have a fit, was shown at the annual dinner of the New York State Medical Association a week ago last Wednesday night. The

man who surprised that large assembly of physicians at Hotel Manhattan was Rev. Merle St. C. Wright, of the Lenox Avenue Unitarian Church, who placed himself on record as favoring euthanasia, which in medical parlance is the putting of incurables to death. He said: "Where the prolongation of life is simply the prolongation of hopeless agony it seems to me that it would be proper that such a patient should quietly, decently, modestly, be allowed to end the suffering. It seems to me that such a course would be a step forward in civilization and a step further away from the barbarians." Even the hardened old medical practitioners were knocked somewhat breathless, not by the idea, for it is a view perhaps covertly held by the majority of doctors, but because of the source from which it came. After the doctors caught their breath the Rev. Mr. Wright's outspoken opinion was heartily applauded.

And why not? Is a life valuable when it ceases to be anything but hopeless agony, the mere retention of a heart-beat and excruciating efforts to inhale a breath of air to keep the flickering flame alive? Take, for instance, an incurable case of cancer. Even the nurses in hospitals, inured to all kinds of dreadful sights and to the dressing of sores and wounds, can never overcome their repugnance to the task of dressing the afflicted patient. When such a one has to be cared for by a poverty-stricken family, perhaps by a mother overburdened with children crying for bread, why should not a council of doctors be held and the sufferer be put out of pain? Why, indeed, should hopeless idiots, malformed and perhaps malignant, be cared for and kept alive any more than a broken-legged horse, which can never again be any good and is always shot? The average idiot is born so, and because he has a semblance of humanity is treated as if he had a soul, though no more trace of such a thing can be found than in a gorilla, which often looks more like a man than many of those who are congregated in asylums for the imbecile. The very greatest precautions should be taken before euthanasia is permitted, but in strictly defined limits, and after ample consultation amongst physicians, I cannot but believe that it would be a mercy to put the sufferers out of pain and relieve those who have so much difficulty in supporting them, and who may be of great value to the world, of burdens which are sometimes almost intolerable. At least, why should an effort be made to keep a hopeless sufferer alive? As long as a man or a woman can earn a living for himself or herself and contribute to the support of others they could not be spoken of as incurables. I know my readers will think that I am reverting to barbarism, not getting away from it, when I applaud the sentiments of Rev. Mr. Wright; nevertheless, it is a view that I have held for many years, and it is a view that I know to be held by the majority of physicians who would not think of terminating the existence



of even the most agonized incurable because it is against their system of ethics as well as against the law. Perhaps in thousands of cases of which we know nothing, because the physician would not speak about it, or the family of the sufferer would not admit it, euthanasia is practised, sometimes as a result of the agonized prayers of the patient. The world moves fast, and though the theory of putting the incurable out of misery may not become general for a long time, yet it is bound to take its place as the whirling sphere on which we live makes it more difficult for even the well and those who should be reasonably happy to obtain a livelihood. A sign of this is to be found in the reduced efforts made by physicians to simply prolong life by every possible means, and a saying that we hear so frequently with regard to incurable sufferers when they die, "They are better off," or "They are well out of their misery."—*Saturday Night*.

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### PROPERTY RIGHTS IN SOCIETY PAPERS.

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The ethical rules relative to society papers seem to be little comprehended, and being many sided may possibly be expounded with advantage to all concerned. The three main aspects of the question relate to the rights of the author, of the society, and of the publisher.

*Author's Rights.*—The author of a thesis is primarily the owner, and except with his consent none of his rights pass from him. He needs no copyright, for prior to publication his manuscript is private property, and who takes it steals it. The larceny is petty or grand according to the value and circumstances. Where an author makes a definite agreement in regard to a manuscript, of course the terms of the agreement hold and are easily interpreted. We are at present concerned rather with the unwritten rules governing the presentation of a paper before a meeting of members of a dental society.

The author being invited to present a paper, and agreeing to do so without further stipulation, in effect agrees that after reading his paper, his manuscript shall be handed to the Society's representative, usually the secretary, whereupon it becomes a part of the proceedings and as such a part of the property of the society. Consequently it rests entirely with the society to choose an organ of publication, and in this the author rightfully cannot dictate. Should an author have a preference in the matter of publication, he should so state in advance of permitting his name to be printed on the announcement programmes, at which time, the manuscript being his own property, he may part with it on conditions of his own making. It is too late after reading the essay, for it then passes out of his ownership, and therefore out of his control.

It has been stated above that an author is primarily the owner of his own manuscript. The same rule does not apply where the material is presented in the form of a lecture, or extemporaneously, and is taken by the society's stenographer. The resultant manuscript is the product of the work paid for by the society, and therefore the society has even more right to its control than in the case of manuscript papers.

Unless distinctly stated in advance it is highly improper for an essayist to appear and speak extemporaneously. Such action not only borders on discourtesy, but it is a breach of that etiquette which binds a guest to make temperate use of his host's hospitality. Stenographers are paid in proportion to their quantity of work, and are usually engaged to take note of business transactions and discussions. The society having afforded an author an opportunity to present his paper before a body of professional men capable of discussing his subject, should not inflict the further expense of a stenographer to take down his words. Having done so it is more than reprehensible to demand that the report be sent to him for revision, and then perhaps to keep the same for weeks or months. Where one is so particular about his papers, he should prepare them in advance.

*A Society's Rights to its Proceedings.*—All that occurs during a meeting of a society constitutes its proceedings, and as such becomes property which may be legally protected. This has been decided by the supreme court of the State of New Jersey, and that court was able to cite other decisions similar in character. Of course property rights cease with publication unless a copyright be taken. But prior to publication the society owns outright all papers and discussions presented before it. It is entirely by courtesy that authors or those contributing to the discussions are given an opportunity to revise manuscript or remarks prior to the printing of the same. It is a courtesy, however, which may rightly be extended to all who do not abuse it. Under this rule, when an author agrees to read a paper before a society, the society has a right to demand the manuscript as soon as read. It is also for the society to decide what journal shall publish its proceedings, and having done so it can prevent any other journal from printing its papers, even though a stenographer be sent to secure the same. But any journal may publish a report of the substance of either the papers or the acts of the society, provided it does so in its own language.

*The Publisher's Rights.*—Matter sent to a dental magazine from a society for publication becomes the literary property of the magazine on its acceptance of the same, of course subject to such conditions as may have been mutually agreed upon, or else which may have been stipulated at the time of proffering the manuscript. Once accepted



for publication neither the society nor the author has the right to withdraw a paper nor to prohibit publication against the wish of the publisher. Were it otherwise, the publisher would be at the mercy of the whims of the society secretaries, and authors, who could recall papers after they had been set in type, or after illustrations had been made. This would be manifestly unjust.

A right often claimed, the right to read proof, exists only in the aberrant minds of over-egotistic authors. The reading of proof is supposed to be for the purpose of making sure that the printer has correctly set in type the matter given to him. In all well-regulated publishing houses that is all that proof-reading is permitted to be. The type-setter must "conform to copy." Errors are corrected at his own expense. Editorial alterations in the proof is an entirely different matter for which extra charge is rightfully made. The printer cannot be expected to set in type matter which exists only in some men's brains. Such changes are made by a magazine editor with due allowance for the expense involved, and are so managed as to minimize the time that will be required to make the alteration. If he thinks a word should be omitted, he replaces it, if possible, with another of equal length. Thus only a single line is reset. With the majority of authors receiving proof for correction, words and phrases are often introduced, or cut out, regardless of the fact that the words inserted or removed may mean the resetting of ten, twenty, or even thirty lines. Moreover, they think nothing of holding proof several days or longer. It is for these and similar reasons that publishers are so loath to send out proof for correction.

The rules for the most satisfactory management of society papers are very simple. The authors should carefully prepare their essays, have them typewritten, and then revise them into exactly the language they desire to see in print. Society secretaries receiving manuscript not in proper condition for publication, should either return them to their authors for revision, or else have the corrections made by the society editor. Under such circumstances the publisher becomes responsible for the accurate translation into type of the author's essay, and it will not be requisite to send out proof sheets.—*Items of Interest.*

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## PHYSICAL DETERIORATION.

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A very interesting debate took place recently in the House of Lords, when the Earl of Meath and the Bishop of Ripon drew attention to some recent reports and statistics bearing upon the physical condition of the people. Of what use is it, as Lord Rosebery has asked, to have an Empire unless we have an Imperial race? Most authorities are agreed that the standard of

national physique ought to be improved, but authorities are not all agreed that the national physique is deteriorating. In fact the *Times* goes so far as to say that—so far from deteriorating—it has considerably improved of late years. It says, “While realizing to the full the very great importance of the question of physical fitness or degeneracy which has thus been brought under discussion we cannot but feel that it is very possible to regard it from an unduly alarmist point of view, and we greatly doubt whether there are materials in existence for any positive determination with regard to it. That a large proportion of the poorer section of our people are of inferior physique is undeniable, and the couple which has been described as the ‘small young woman and the small young man’ is always in evidence in our towns. But in order to ascertain whether they are with us now in larger proportion than heretofore, whether, that is to say, physical degeneracy is on the increase, it would be necessary to institute an accurate comparison between the townsfolk of to-day and their forefathers. The circumstances of the case, as far as they offer themselves to superficial inquiry, are not favorable to a belief in degeneration. Continuous improvement has been effected during the last fifty years in all that tends to promote physical health and development. The laboring classes in towns are better fed and better housed than at any former period; and the sanitary conditions of their work and their surroundings have been the subjects of unremitting attention, the good results of which are plainly shown in the reports of the Registrar-General. It is certainly true that the urban population has increased more rapidly than the rural, and to some extent at its expense; and it is probable that the men who fought in the Peninsula were mainly recruited from the villages, and were of a stronger type than any now to be obtained from towns. Beyond this we are not at present prepared to go.”

The Duke of Devonshire has suggested a Royal Commission on the subject, and the Government has already requested the Royal College of Physicians to investigate and report. We hail this movement as being in the right direction, and hope that the evidence of dental surgeons may be sought for and included in the investigations.

Statistics are notoriously unreliable. They depend so much on the point of view taken, and on the care which has been observed to eliminate every source of error. For instance, in computing the decreased death-rate as a proof of national health, it must be borne in mind that the means of preventing and fighting infectious diseases have been much improved; but it does not follow that the public, which does not become decimated by an infectious fever, is any healthier or even as healthy as its predecessors. The individuals may live longer on the average, but



their lives may individually be feebler and lacking in vitality. In the same way, in computing the alleged increase in dental caries (which we certainly affirm) comparisons are made with ancient skulls. We are informed that caries was found in such-and-such a percentage of ancient skulls and that the percentage is very similar to that found in modern skulls. But it will be found on further investigation that if one carious tooth is found in an ancient skull, however little that carious tooth may interfere with function, it is placed on a par with a skull in which the greater proportion of the teeth are carious or functionless. Statistics compiled on this basis are worthless.

In any case, the main points are not whether the race or the teeth are deteriorating but that the race and the teeth are many degrees below the normal. This is especially the case with the poor, and especially the urban poor. According to the investigations of Mr. B. S. Rowntree and Mr. Charles Booth, more than a quarter of our town populations are living at or near the poverty line, and so are not able to provide the food and shelter necessary to the upbringing of a family in health and vigor. If this be so, the nation is at least approaching a condition in which the increase of population presses severely upon the means of subsistence.

The real solution of the problem is not to be found in Acts of Parliament, but in forces intellectual and moral which can only be the outcome of real education. Most of the evils are due to ignorance and superstition. These are found on every hand, and, until by the slow process of education and enlightenment they are eradicated, we cannot hope for that goal which ought to be the ideal of every statesman—a community not necessarily wealthy or powerful—but healthy, and consequently, happy.—*British Journal of Dental Science.*

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## DENTAL ETHICS.

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BY. DR. EMMA T. READ, SAN DIEGO, CAL.

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In considering the subject of dental ethics, it is perhaps of not so much importance to bring out a number of new points as to call attention to the laws we have, and to bring about a better enforcement of them. If the unwritten laws of dental ethics were engraven on our hearts, we should have less trouble in deciphering the written.

Burke says, "Good manners are of more importance than the law, for upon them the law depends. Manners are the revealers of secrets, and the betrayers of any disproportionments

in mind and character." To hold respect, to be honored and to be successful in attaining the highest degree of skill in our profession of which we are individually capable, and to have some cash on hand is our ambition; but in kindly words, politeness, cordiality, sensible, tactful, sincere praise and appreciation for the efforts and results of others, lies much of our real enjoyment. Whatever may be the code of ethics, no profession can rise higher than the quality and character of those who represent it. Principle is greater than law; and principle must predominate or our profession will be dishonored.

There are wrongs and injustices, and we as an organization adopt certain rules and laws not only to protect the rights and interests of each other, but to guard against the array of advertising men and women, who are willing to bring dishonor on the dental profession by using it as a cover to obtain money.

The *Medical Press* states: "The official records of the city of Berlin show that 60 per cent. of the quacks practising there have been ordinary day laborers before they blossomed out as professional benefactors of the afflicted, that only 40 per cent. have had an elementary common school education."

We do not have to go to Berlin to find a similar condition, but in our own state, and cities and towns.

It is said (Dr. Barrett) that there are no known dental schools either in North or South America, outside the United States, whose courses can be accepted as equivalent for even one year of the recognized American schools, save the Royal College of Dental Surgeons of Ontario, Canada. Every year we are furnishing a better equipment for the dental graduate, but are we requiring a corresponding loyalty to our code of ethics? Our beloved Dr. Menges could not have left us a more important question to answer than that in his last article, in the *Digest* of June, 1900: "What Will the Policy Be?"—*Amer. Dent. Jour.*

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### "DENTISTRY IN MEDICAL COLLEGES."

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Under the above caption the leading medical journals of the United States have published without comment the following paragraph:

"The National Dental Association at the recent meeting held at Asheville, N.C., adopted the following resolution: '*Resolved*, That it is the sense of the National Dental Association that each Medical College in the United States should include in its curriculum a lectureship on oral hygiene, prophylaxis, and dental pathology.' The committee representing the National Dental Association feels that with the introduction of the teaching of



oral hygiene in the public schools, and with the co-operation of medical men who have been specially instructed on this subject, a great stride will have been made towards the prevention of caries of the teeth, not to mention many other good results to the general system, which would surely follow a better care of the oral cavity."

The failure of medical schools of the present day to instruct students even in the elementary principles of a branch of the healing art which the fathers of medicine did not disdain to teach, according to their lights, and which John Hunter considered worthy of so much laborious research, has long been regarded by dentists as a defect in the medical curriculum which should be remedied.

While there can be no doubt as to the good results which may be expected to follow the general adoption of the recommendation of the National Dental Association, against such action will be urged the fact that the medical curriculum is already overcrowded and that the number of theoretical studies the student is required to pursue with more or less thoroughness and the mass of technical detail in laboratory and clinic he is called upon to master already tax to the utmost his mental and physical resources.

Great as is this obstacle to the inauguration in medical schools of a course in oral hygiene, prophylaxis, and dental pathology, room would doubtless be made for it if it were deemed of sufficient importance by college faculties, or were there any general demand for it on the part of the medical profession and the undergraduate body.

As a matter of fact, however, the interest manifested by medical students in dental pathology and associated subjects when taught in medical schools has never been of a very active or encouraging character. In one instance known to the present writer an annual course of lectures covering that field, delivered in a prominent medical school by one of the most eminent dental teachers in the profession, was ultimately abandoned by him, chiefly because of lack of interest and paucity of attendance on the part of the students of the institution; and the course has never been resumed.

Heretofore the average medical man has regarded diseases of the teeth as relatively of so little importance as to be quite beneath his serious attention, and his lack of interest has been accentuated by the presence in all parts of the country of dentists whose more highly skilled service has resulted in the almost entire elimination of disorders of the teeth from his range of practice. In some remote district the country practitioner may still derive an occasional fee from a palliative application to an aching tooth or, that failing, from its extraction; but as a rule he regards dental cases as neither remunerative nor desirable.

Even as a consultant in cases of systemic involvement, the

medical man too generally proves unsatisfactory because of his lack of knowledge of causative conditions and disinclination or inability to suggest any treatment for a complication purely dental in its origin, other than the immediate removal of the offending organ.

While the attitude of the medical profession relative to dental disorders has hitherto been largely one of indifference, indications are not lacking of the importance of the teeth and of the fact that their early decay and loss are not only an evidence of present degeneracy, but a potent causative agency in the progressive deterioration of the race.

The experience of England in the Transvaal was a sharp reminder that, even for the most valiant, heroic virtues are closely dependent upon homely needs; and that the masticating and digestive ability, as well as the food supply of her armies, are important factors in their fighting efficiency. In the South African War her recruiting officers were compelled, because of dental defects, to reject thousands of otherwise available men; while thousands more of those sent to the front became speedily incapacitated for active service for causes to which dental deterioration, together with lack of skilled dental service, were largely contributory.

America too, in her war with Spain and the subsequent hostilities in the Philippines, learned something of the same lesson, and to a meagre extent has taken measures to prevent or remedy the evil by the organization of a corps of dental surgeons for army service. Even England, notwithstanding her characteristic reluctance to adopt innovations, has yielded to the lessons of experience and, after a fashion still more halting and insufficient, has made provision for the dental care of the rank and file of her armies.

Of still more hopeful augury, because it attacks the evil where, as a rule, it begins, is the movement, both in Europe and America, for the official examination of the teeth of children in the public schools. While this measure has been adopted in relatively but few localities, the results have been salutary. To be of the greatest practical benefit, such examinations must be associated with free dental service for the children of the very poor; but even without that desirable feature, dental examinations have the merit that they are educational, emphasizing a <sup>pa</sup> and calling attention to defects often overlooked through <sup>re</sup>lessness or indifference of parents; while in many instances <sup>at</sup> <sup>A</sup> expose conditions of filth and disease which are not only <sup>Tha</sup> <sup>ef</sup>ilement to the mouth, but a menace to the general system. <sup>Medic</sup> The fact that such unhygienic conditions in the oral cavity <sup>riculum</sup> prolific cause of grave systemic disorders can hardly be <sup>patholog</sup>ed, for it is manifest that the constant ingestion of <sup>Associatio</sup>ganisms must in time overcome the resisting power in healthy tissue and lead to pathological changes more



or less grave in character. These facts being now fully known to all well-informed physicians, it may be confidently hoped that, even if overcrowded, room may soon be found in the curriculum of medical schools for the subjects recommended by the National Dental Association. This being done, practitioners of medicine will be enabled to co-operate intelligently with the dental profession in their effort to arrest dental deterioration, and will be inspired to use all the weight of their potent influence with the community in support of measures looking to that end.—*Dental Brief*.

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## WHERE SHOULD PORCELAIN INLAYS BE EMPLOYED?

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BY W. T. REEVES, D.D.S., CHICAGO.

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I am going to make this broad statement: There are scarcely any cavities where gold can be utilized, that porcelain cannot be successfully used, and there are so many places and conditions under which gold cannot be used, and where porcelain will be a perfect material with which to restore lost tooth structure, that I place it first in point of applicability.

I will not take your time to enumerate all the places porcelain can be used, but only some of the conditions where gold could not be used, and where porcelain will do perfect service, and then some cavities where porcelain is the only material indicated, and which goes to prove a quality that porcelain possesses, and has not had accorded it.

Under the first will come the following:

For the young, in whose mouths gold fillings fail faster than cement fillings wash out, and where cement dissolves out so fast as to be dangerous, you will come very near doing permanent work with porcelain.

For the aged, whose strength will not permit the long sitting necessary for the insertion of a gold filling, you can do permanent work with porcelain, because you can divide the work between two or three sittings.

For those bordering on nervous prostration, and those high-strung nervous temperaments, for which it is a physical impossibility to prepare a cavity, even for a cement filling, to say nothing of gold, you can do permanent work with porcelain.

For those refined, sensitive natures, to whom the display of gold in the front of the mouth is an ever-conscious annoyance, you can confer a lasting benefit by the use of porcelain, and restore teeth to a condition so that persons at close conversational range would not know there are any fillings there.

In teeth that are loose from pyorrhea, you can do permanent work with porcelain, whereas you could not pack gold either by hand-pressure or mallet, and would have to resort to amalgam or cement.

The other condition which is by far the most important and which proves a quality that has not been credited to porcelain under its proper classification, and brings out the first point I want to make, is found in the following in which porcelain only is indicated: Extensive cavities where decay has encroached so close upon the pulp, that death of pulp would be almost sure to follow if filled with a metallic or cement filling, you can fill with porcelain with almost absolute security that the pulp will remain alive. Cavities in the buccal surfaces of molars and bicuspids at the gum margin that remain sensitive to anything hot or cold taken into the mouth, and cavities on the labial surfaces of the anterior teeth that are sensitive to the drawing in of a cold breath, when filled with gold, become perfectly normal when the gold is replaced with a porcelain inlay.

Accidents to the young, that result in the breaking off of a large portion of an anterior tooth, where it is desirable to retain the pulp alive, on account of the incomplete development of the root, can be restored to full contour and usefulness with a porcelain tip, and the pulp will remain alive.

In these and other similar cases, nature revolts at the introduction of any metallic or plastic material for the replacing of the lost tissue, but it is perfectly resigned to the introduction of porcelain in the form of inlay or filling, and resumes its normal functions, and goes on its way rejoicing, and your patient does also.—*Extract Review.*



## Proceedings of Dental Societies

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### TORONTO DENTAL SOCIETY

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Report of the Secretary for 1902-03: The society has held seven meetings, with an average attendance of thirty-two, best average on record; new members, 46; memberships forfeited, according to Sec. 7, Art. II., of the Constitution, 59; present active membership, 46.

Article III. of the Constitution, dealing with the election of officers, was amended (see minutes, p. 81) providing for the office of Press Editor; for nomination at the April and elections at the May meeting; for a specific change in the method of conducting the elections.

W. G. L. SPAULDING, *Secretary*.

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### INSTITUTE OF DENTAL PEDAGOGICS.

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The following is the programme of the meeting of the Institute of Dental Pedagogics, to be held in Buffalo, Dec. 28th, 29th, 30th, at the Iroquois Hotel. All interested in education and the elevation of the standards of the dental colleges and students are very earnestly requested to attend this meeting.

President's Address—"Some Faults of the Prevailing Dental Training," Dr. J. D. Patterson, Kansas City. Discussion to be opened by Dr. John I. Hart, New York; Dr. B. Holly Smith, Baltimore; Dr. H. P. Carlton, San Francisco; Dr. Geo. E. Hunt, Indianapolis.

Prosthesis (two papers)—(a) "Methods of Teaching the Artistic Elements of Prosthetic Dentistry," by Dr. A. O. Hunt, Omaha, Neb.; (b) "Methods of Teaching the Anatomical Arrangement of Teeth," by Dr. B. J. Cigrand, Chicago. Discussion to be opened by Dr. N. S. Hoff, Ann Arbor; Dr. G. H. Wilson, Cleveland; Dr. R. R. Freeman, Nashville; and Dr. F. H. Berry, Milwaukee.

"An Ideal in Pathology," by Dr. D. R. Stubblefield, Nashville. Discussion to be opened by Dr. H. A. Smith, Cincinnati; Dr. T. B. Hartzell, Minneapolis; Dr. A. H. Peck, Chicago; Dr. O. L. Hertig, Pittsburg.

Orthodontia Technology (two papers)—Dr. S. H. Guilford, Philadelphia; Dr. C. S. Case, Chicago. Discussion will be opened by Dr. W. E. Grant, Louisville; Dr. A. E. Webster.

Toronto; Dr. H. B. Pullen, Buffalo, and Dr. H. T. Smith, Cincinnati.

"The Value of Instruction in Dental History and Literature," by Dr. J. Taft. Discussion to be opened by Dr. H. L. Ambler, Cleveland; Dr. Charles McManus, Hartford; Dr. J. H. Kennerly, St. Louis, and Dr. B. J. Cigrand, Chicago.

"Porcelain Technology," by Dr. H. J. Goslee. Discussion to be opened by Dr. J. Q. Byram, Indianapolis; Dr. Ambler Tees, Philadelphia; Dr. L. E. Custer, Dayton; Dr. H. L. Ban-shaf, Milwaukee, and Dr. J. F. Ross, Toronto.

"The Dental Curriculum," by Dr. Geo. E. Hunt, Indianapolis. Discussion to be opened by Dr. G. V. Black and Dr. J. B. Willmott.

"How Shall Quizzes be Conducted?" Symposium by Dr. F. D. Weisse; Dr. R. H. Nones, and Dr. L. P. Bethel.

Exhibition of recent teaching appliances—Dr. W. G. Foster, Baltimore; Dr. L. S. Tenny, Chicago.

W. H. WHITSLAR, *Chairman Ex. Com.*

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## DENTAL COLLEGE CLUB ELECTIONS.

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The annual club elections have just been held, with the following results:

Association Football.—Hon. President, Dr. Stewart; President, Hamilton; Vice-President, Kelly; Secretary, Warriner; Executive Committee, Daynard, Forbes, Dunlop.

Hockey—Hon. President, Dr. Willmott; President, D. Wethercott; Vice-President, Huntley; Secretary, McIntyre; Executive Committee, Hurtle, Watt, Carrult.

Hand-Ball—Hon. President, Dr. Thornton; President, Truman; Vice-President, Howleth; Secretary, Clarkson; Executive Committee, Martin, McCoultry, Bagshaw.

Rugby—Hon. President, Dr. A. E. Webster; President, Lappen; Vice-President, French; Secretary, Saunders; Executive Committee, Marshall, Keely, Kenny.

Royal Dental Society—Hon. President, Dr. J. B. Willmott; President, Wright; Vice-President, Miss Thomas; Treasurer, Miss Walker; Secretary, Noble; Executive Committee, Roundtree, Mrs. Gordon, Little.

Musical Society—Hon. President, Dr. Clark; President, Braddow; Vice-President, Day; Secretary-Treasurer, Jackson; Executive Committee, Beat, Doherty, Heath.

The Executive of the Senior years is as follows: President, Robertson; Secretary, Little; Chairman of At-Home Commit-



tee, Dent; Representatives on At-Home Committee, A. A. Stewart, Elliott.

The following are the officers of the Junior year: President, Doherty; Vice-President, Mrs. Gordon; Secretary, Hambly; Representatives on At-Home Committee, Thompson, T. Smith.

The Dental Quartette went on a concert tour for the holiday.

It is expected that an orchestra will soon be formed in the college.

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### RESOLUTION BY DR. B. L. MORPE, ON DEATH OF DR. TAFT.

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*Whereas*, after a long and useful career of sixty years, as practitioner, author, journalist and teacher, death has ended the life work of Professor Jonathan Taft, who was universally loved and respected by the dental profession for his scholarly attainments and high ethical standing;

*Whereas*, in the death of Dr. Taft our profession has lost an advanced thinker and an able and enthusiastic exponent of the best in dental surgery;

*Be it resolved*, That the Fraternal Dental Society of St. Louis extend our sincere sympathy to Mrs. Taft in her bereavement, which is the bereavement of the whole profession, and express our high regard for the worth and character of this pioneer, who so ably exemplified the highest ideal of American dentistry.

Unanimously adopted, October 20th, 1903.

W. L. WHIPPLE, *President, pro tem.*

E. E. HAVERSTICK, *Secretary.*

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### "F. D. I." INTERNATIONAL DENTAL FEDERATION.

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*(Circular to the Presidents of National Dental Societies.)*

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Office of the Secretary-General,

45 Rue de la Tour d'Auvergne,

PARIS, September 18th, 1903.

*Dear Sir and Honored Confrere*,—The International Dental Federation, at its meeting held in Stockholm, in August, 1902, in accordance with the powers that had been conferred upon it, decided that the Fourth International Dental Congress be held at St. Louis, Missouri, in August, 1904, at the time of the hold-

ing of the St. Louis Universal Exposition. The decision thus reached followed the receipt of invitations regularly addressed to the "F.D.I." by the National Dental Association, the Odontological Society of St. Joseph, the National Association of Dental Examiners, the Odontographic Society of Missouri and Western Kansas, the Society of Dental Science of St. Louis, the Committee appointed by the Missouri State Dental Association, the Dental Society of St. Louis, the City of St. Louis, the Government of the State of Missouri, and the authorities of the Louisiana Purchase Exposition. This decision was confirmed at the session of the "F.D.I.," held in Madrid, in April, 1903.

The officers of the Executive Council of the "F.D.I.," in accord with the authorities of the Exposition and the Committee of Organization of the Congress, have determined the conditions under which the Federation will take part in the organization of said Congress, and we are now officially advised that the Fourth International Dental Congress will be held in the City of St. Louis, in 1904, from August 29th to September 3rd, inclusive.

The purpose of this circular is to inform you that the International Dental Federation has decided to lend its entire support to the organizers of the Fourth International Dental Congress, and, in view of assuring the perfect success of the Congress, we therefore request you to appeal to the several dental societies in your country to take part in the said Fourth International Dental Congress.

It seems unnecessary to call your attention to the importance of all dental societies the world over being appropriately represented at this gathering, both scientifically and professionally. We think it, however, desirable to call attention to matters which the delegates of the different federations and national societies will be called upon to discuss with reference to the organization of the second term of the International Dental Federation—that which will be comprised, namely, in the period between the Fourth and the Fifth International Dental Congresses.

During the first working period of the "F.D.I." comprised between the Third International Dental Congress, held in Paris in 1900, and that of St. Louis, to be held in 1904, the members of the Executive Council of the "F.D.I.," who were appointed in Paris by your representatives, have fulfilled to the best of their abilities the mission with which they had been entrusted by the members of the Third International Dental Congress, of which you may have been able to judge from perusal of the printed transactions of its different meetings.

They have assured the holding of a Fourth International Dental Congress (resolution No. 13).



They have created an International Commission of Education, which presented a programme of international dental education at the sessions held in London, Cambridge, Stockholm and Madrid (resolution No. 16).

The International Commission of Dental Hygiene, organized at the Cambridge session, will at the St. Louis meeting complete the programme of international dental hygiene to be recommended to the public authorities.

Other projects of interest to the evolution of dentistry—such, for instance, as the publication of an International Dental Review—are being carefully studied in view of future realization. Reports have been prepared and presented on the federation of schools; and other propositions are now under consideration, such as the creation of a universal nomenclature, and also of a code of ethics to be universally accepted. The execution of these projects will fall on our successors in the subsequent terms of the “F.D.I.”

It will be the duty of the delegates to the St. Louis Congress to ratify the constitution of the “F.D.I.,” to introduce such amendments as may be necessary, to appoint the members that will represent the different countries on the Executive Council and to decide on the programme of the second period of the “F.D.I.”

Appreciating the importance of the great international gathering to be held in St. Louis in August, 1904, we are convinced that you will be able to induce the national dental associations and the other dental societies of your country to take part in the Congress by sending delegates and by contributing scientific papers.

We request that this circular be published in all the dental journals of your country.

Please accept, dear sir and *confrere*, the assurances of our fraternal sentiments.

DR. CH. GODON, *President*,

DR. E. SAUVEZ, *Secretary-General*.

## Reviews

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*A Compend of Diseases of the Skin.* By JAY F. SCHAMBURG, A.B., M.D., Professor of Diseases of the Skin, Philadelphia Polyclinic and College for Graduates in Medicine; Fellow of the College of Physicians of Philadelphia. Third edition, revised and enlarged; 106 illustrations. Price, 80 cents. Published by P. Blakiston's Son & Co., No. 1012 Walnut Street, Philadelphia.

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*A Compend of Human Anatomy.* By SAMUEL O. L. POTTER, M.A., M.D., M.R.C.P. (Lond.), Professor of the Principles and Practice of Medicine in the Coope Medical College, San Francisco; Author of "Materia Medica, Pharmacy, and Therapeutics," and other Quiz Compend. Seventh edition; 138 wood engravings, also numerous tables and plates of the arteries and nerves. Price, 80 cts. Published by P. Blakiston's Son & Co., No 1012 Walnut Street, Philadelphia. 1903.

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*The Histology and Patho-Histology of the Teeth and Associated Parts.* By ARTHUR HOPEWELL SMITH, L.R.C.P. (Lond.), M.R.C.S. (Eng.), L.D.S. (Eng.), Lecturer on Dental Anatomy and Physiology, Assistant Dental Surgeon and Demonstrator of Practical Dental Histology at the Royal Dental Hospital, London; Assistant Demonstrator of Histology at the Charing Cross Hospital Medical School. With two colored plates and four hundred and ninety-three illustrations in the text, including three hundred original photomicrographs by the Author. Published by the Dental Manufacturing Company, 6 to 10 Lexington Street West, London, England. Dedicated to Sir James Crichton Brown, M.D., L.D.S., F.R.S., J. Howard Mummery, M.R.C.S. (Eng.) L.D.S. (Eng.), and Frederick J. Bennett, M.R.C.S. (Eng.), L.D.S. (Eng.). Uniform with this volume by the same author, "Dental Microscopy," a handbook of practical dental histology.

The making of this book is a credit to the author and to the publishers. There is nothing lacking. It is well indexed, both as to chapters and illustrations. The matter is well-arranged, the binding excellent, the type and paper the best. It is rare to find such excellence of matter and arrangement, no detail being neglected. Without doubt this book fills a needed place; in fact, it is really the first in the field in dental histology and pathology



which might be read and studied by dental students as a text-book. There are others, but they are so verbose and illogical that few teachers ever recommend them to their students. It is refreshing, indeed, to read a work from the pen of a dentist on dental histology. So many of our books are written by young physicians who are ambitious, but have no other qualification. Again we ask for the Canadian agents of the publishers of this most excellent work.

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## Correspondence

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### MENIALS, APPRENTICES AND PRECEPTORS.

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To the Editor of DOMINION DENTAL JOURNAL:

Dear Sir,—In reply to “Gratitude’s” letter in your October issue, let me point out that he is under no obligation to defend any man who has “ably assisted in exalting the dental profession of Ontario,” for no such person has been attacked by the present writer.

As to what course of dental instruction is most efficient, there is no reason why he should not offer his personal opinion. But I wish he had been more careful in his choice of words where he writes, after referring to the disgracefully unethical “minority”—“with whom evidently our friend ‘Common Sense’ has been so unfortunate as to be *closely associated*.” I am bound to assume that our worthy friend did not intend the discourtesy of these words, for it is neither *evident* nor even presumable that I have been so “associated.” What I suppose our friend meant to say is that I have had occasion to observe, and sometimes to suffer, the bad conduct of such men.

“A student to a certain degree chooses who shall be his preceptor.” He certainly does, and that, too, with rather less qualification to choose than is possessed by sick people to choose who shall treat their maladies. In the latter case we see everything chosen from “Dowie” and spirit-rappers up through the long list of quacks, frauds, “faith healers,” and simpletons, to the honorable practitioner of medicine and surgery. A sufferer may already have had some experience with disease and those who treat it, or advice perhaps. But what shall we say of the prospective dental student, devoid as he is of the most elementary knowledge of dentistry at the time he signs articles? How can he, in this condition, be expected to do what dental examiners of special education and large experience find difficult, viz., to determine *who* is qualified even to practise dentistry, not to mention teaching it?

"Gratitude" inquires why the position of a menial in a dental office or elsewhere should be less ennobling, or less honorable, than compliance with the uniform rule and discipline of a college. Surprised as I am at such a question, I shall endeavor to answer it.

Since the beginning of civilization the possession of knowledge, culture, and independence has been, and still is, deemed honorable. And justly so. For by the use of these possessions have blessings been conferred upon the sons of men. As Shakespeare says, by one of his noble characters, "Ignorance is the curse of God." And since schools and colleges are the acknowledged instruments of learning and culture, compliance with their discipline was, is still, and probably always will be, considered honorable. Great scholars, prelates, poets, masters, doctors, judges, ambassadors, and kings have thus complied in proper season, and are not ashamed to acknowledge that they have gone to school.

How has it been with menial servants during all these ages? Since the days of ancient Israel they have been told to obey their masters, and when that obedience was satisfactory they were said to be worthy of their hire. The servant is ever accounted inferior to his master, and this inferiority he is obliged to acknowledge, since he would not be a servant had he the ability to occupy a higher station. Those who once were menials and afterwards attained a better position do not often parade, or even acknowledge their history. By common consent the world over servitude is for the meaner sort of mortals, and therefore I hold it proven that to force a boy, whose life is not to be that of a menial, into such a position, is to do him a grave injury.

Friend "Gratitude's" ideas about menial service read as if they had been derived from those little cheap tracts often handed out by well-meaning women.

"The Canadian dentist ranks above all others in integrity, decency and professional conduct, such is the opinion of "one who has a knowledge of the profession in several countries." Let us thank that man for his courteous words, and then inquire what manner of men represented us when we secured this enviable reputation. Who goes abroad as "the Canadian dentist" to win distinction and a good name among his brethren in other lands? The country "preceptor"? Or his admiring apprentice? Not much. We have gained this reputation mostly through men who have had instructions and associations in more than one college, men who have worked, read, and travelled, and men who have taken a useful part in dental society meetings at home and abroad, and an intelligent interest in education. And many of these owe little or nothing to any office preceptor for the accomplishments, habits, and demeanor by which the said reputation is gained.



"Gratitude" makes frequent use of the word *practical* to qualify courses of instruction, dental graduates, kinds of teaching, etc. Are there, then, courses of instruction, "professional dental graduates," and subjects on the curriculum that are *not* practical"? If so, he will do us all a critically useful service to name them. In my former innocence I had thought every subject on the curriculum was chosen because a knowledge of it is found useful to a dentist.

It seems also that "there are many theories advanced in lectures and text-books that the student will find quite impracticable . . . in certain localities." If he refers to approved text-books and lectures of the present year it should be at least interesting to know what some of these "theories" are, and how they direct good practice in one place while they fail to do so in another. Are the theories upon which dental practice is founded only local affairs, and variable, like gossip of small towns?

These, and the still weaker parts of "Gratitude's" letter call for no further treatment at my hands.

Yours truly,

COMMON SENSE.

# Directory of Official and Voluntary Dental Associations and Societies of Canada

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Secretary—A. Scott Ives, D.D.S., St. Catherine Street, Montreal, Que.

The above is a correct list of the dental organizations of Canada, with Presidents and Secretaries, so far as they are known to the Journal. It is the intention to keep a list of the officers of all Canadian societies in the Journal, so where there are omissions or errors please notify the Editor, who will make the correction, and as far as possible keep a corrected list, which will be of great value to the organizations.



# Dominion Dental Journal

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93 COLLEGE STREET

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## THE NEED OF A MORE INTELLIGENT CONCEPTION OF THE PROFESSION BY THE DENTAL STUDENT.

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"Dentists don't buy books," was the statement of a prominent book-dealer in Toronto when asked if he kept dental books. This is a pretty sweeping statement, and yet there is some truth in it. "And what about the two hundred odd dental students now in attendance at the dental colleges?" was asked. "Oh, they don't buy new books. Second-hand old editions are all they want." This is also a pretty hard crack, but more or less true. Dentists are not readers of dental literature as presented in books on the subject. Among the reasons for this is a wrong conception of what dentistry is to-day. Not one dentist in a hundred can be induced to buy a book pertaining to dentistry which does not treat of the mechanical aspect of the subject.

The fallacy of this is well illustrated in works on orthodontia. Works like Talbot, Wallace Sims, and one or two Germans, which treat of the etiology and diagnosis chiefly, are rarely found in dental libraries. But the American system or

text-book, Farrar, with its 3,000 pages, and Guilford's "Book of Technique," which are filled with histories of cases and pictures of appliances, much like the literature accompanying a quack remedy, can be found in most libraries. Angle's book treats of some principles, and recommends some appliances which he has for sale, and as a consequence has a fair number of readers. The effect of all this is that the profession, so far as orthodontia is concerned, spends its energy in devising and making, or buying, appliances of the most complicated character. This or that appliance is copied from a book, and made to do service when it can never serve. Teeth are extracted so the appliance will fit, and others are permanently destroyed. The reader of "how to straighten teeth" literature will not buy a book on dental anatomy and histology and read it so that he might know what the normal conditions are; or on normal occlusion, dental bacteriology and pathology, or applied forces—such books do not "straighten teeth," but give the reader a conception of essential principles, without which no permanent good can be done except by accident. The same may be said of crown and bridge work.

Another reason for not reading dental books is that authors in the past have attempted the "one-book library" idea, and as a consequence most of it was out of date when published. All that is known about dentistry cannot be put in one volume, or in two or three volumes. If authors would confine their books to the subjects they know something about, and remove all padding, there would be more of them bought and read. Those which have recently been published are better in this respect. The day of the big, cumbersome, padded book is going. Dental journals hinder the sale of books because they are up-to-date, and subjects are more or less attractively presented.

Dental books are hard to get in Canada. There is not a dealer who has a modern work unless specially ordered. Book stores do not keep dental books, nor do dental depots. At dental societies there is no exhibit of dental literature, and no attempt made to bring books before the profession.

The criticism that dental students do not buy new books is well founded. Just now, at every prominent place about dental colleges where students congregate appear notices of books for sale. Juniors sell Black's "Anatomy and Histology";



Seniors sell anatomy, chemistry, histology, orthodontia, metallurgy, and next spring will sell physiology, operative and prosthetic dentistry. It is inconceivable why a student will sell his books, and just as hard to understand why another will buy an old edition. To have a book that one has carefully studied is a great satisfaction as a reference, and of more value to its owner than a new one. These young men who sell their books surely need to have it pointed out to them that what is written in dentistry is far more important than what is transmitted from one to another as a trick of trade.

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### ONTARIO DENTAL SOCIETY MEETING, FEB. 8, 9, 10.

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Full preparations are being made for the coming meeting of the Ontario Dental Society. The programme, so far as essays are concerned, is about completed. Both Dr. Peck and Dr. Taggart will be asked to give clinics as well as discuss their chosen subjects. Porcelain work and therapeutics will be features of the meetings. The Supervisor of Clinics, Dr. W. G. L. Spaulding, Yonge Street Arcade, Toronto, would like every dentist to be ready with a clinic when asked by his district representative. Anyone who wishes to contribute by way of a clinic, essay, or resolution will kindly send a notification to the Secretary of the Programme Committee, Dr. E. C. Abbott, 2 College Street, Toronto, so that provision may be made for its presentation. It has been suggested that instead of the time-honored banquet, that an informal supper be served in the college at six o'clock, and immediately following this some prominent speaker be asked to make an address on some live topic of interest to all educated citizens, of not more than half an hour, leaving the balance of the evening free or for a general session.

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### CANADIAN DENTAL ASSOCIATION.

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The Executive Committee of the Canadian Dental Association held a meeting a few days ago and set the date of the second annual meeting to begin Tuesday evening, September 6th, 1904. The St. Louis meeting will close the Saturday previous. This

date makes it possible to get full advantage of the cheap railway rates to the Toronto Exhibition. Such rates extending to the Atlantic will be arranged to extend to the Pacific Coast also. Those who attend the St. Louis meeting will have sufficient time to get to Toronto. The following local committees were appointed: Programme Committee, Webster, Martin, Hume, Reade; Clinic Committee, Wilkinson, Pearson, Spaulding, J. Frank Adams; Transportation Committee, Clark, Lennox, Chambers, R. Henderson; Exhibit Committee, W. E. Willmott, Price, Husband, Gow; Entertainment Committee, McLaughlin, Cæsar, A. F. Webster, Seccombe, McDonagh, Abbott, Ross, G. L. Palmer, Kennedy, Mrs. Wells.

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### INSTITUTE OF DENTAL PEDAGOGICS.

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Early dental education was mostly secured by the student apprenticing himself with a practising dentist. The early dental colleges attempted to take the place of the preceptor, which was hard to do, inasmuch as college instruction, following the example of medicine and divinity, was all didactic. About 1888 Dr. Black, by a suggestion he got in Paris, began technical instruction in the Chicago College of Dental Surgery. This was a distinct advance in dental education. The preceptor was no longer necessary. Every student undertook in the laboratory such operations as he might afterwards be expected to perform for patients. At the World's Dental Congress in Chicago, 1903, a few ardent supporters of dental technical instruction to students organized what was afterwards known as the Dental Technique Association. For a number of years only those who were teaching technique were interested in the association. Extensive exhibits were made at each meeting of the work done by the students. After discussing what should be taught for a number of years, the question of how it should be taught naturally arose. Methods of teaching came next. Psychology, dental education, college management, all intruded themselves upon the time of the meeting, simply because no other body undertook such work. Three years ago the name Technique Association was, after much discussion,



changed to the present name, Institute of Dental Pedagogics—a name which is more expressive of the work done by the organization. At the time of the organization of the Faculties' Association in 1885 it was intended that it should do the work now done by the Institute, but the Faculties' Association is an administrative body, and for years looked upon the Institute with a jealous eye, lest it should usurp their functions. The Institute is concerned with teaching and teaching only in all its bearings. To-day every progressive teacher is interested in the work of the Institute.

The next annual meeting will be held in Buffalo, N.Y., December 29th, 30th, 31st, at which will be presented the technology of orthodontia, porcelain and prosthesis. Besides these subjects, which are of great practical value, others of equal importance will be presented, as may be seen from the programme under another heading in this issue. The Board and teaching staff of the R.C.D.S. should be well represented at the Buffalo meeting. No more profitable or pleasant days can be spent than among the teachers of dentistry in America.

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### Editorial Notes

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DR. MOSLEY, formerly of Midland, has begun practice in Toronto.

AFTER the Soo failure, Dr. A. B. C. Dando left that town to begin practice in Hamilton.

DR. PICKARD, R.C.D.S., 1903, who was located in Huntsville, is taking a post-graduate course in the Chicago College of Dental Surgery.

THE annual At-Home of the Faculty and students of the R.C.D.S. will be held in the King Edward Hotel, Toronto, December 16th.

THERE are five dentists from New Zealand in attendance at the Royal College of Dental Surgeons, Toronto, with a view to preparing themselves for the D.D.S. examinations of Trinity University.

THE Ontario Dental Society meets during the week of the Mendelssohn Choir Concerts, and any dentists who desire to attend these concerts should at once subscribe for seats to T. A. Reid, secretary, 6 Delaware Avenue.

IN this issue appears an article from Toronto *Saturday Night* which voices sentiments held by many who have not the courage to express them. It is suggested that it must be a comfort to many extreme sufferers to die. Following this idea further, that comfort should not be withheld by allowing them to live—all of which is good. But there is one other thing not mentioned, which is, Why, in the name of common-sense, are monstrosities allowed to live? Every accoucheur knows when a child is born whether it is so deformed that it can never be useful, and why use efforts to bring shame and a burden upon any family by allowing such a child to live? An old physician that the writer once knew pointed with pride to the district in which he practised, where there was not a deformed person who had been so from birth. Such children in his practice were always still-born. May there be more such physicians!

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## Obituary

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### DR. JONATHAN TAFT.

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Dr. Jonathan Taft, for fifty years a Professor of Dental Surgery, and the man who organized the Dental Department of the University of Michigan in 1875, died at about midnight, October 16th, after a short illness of but a few days. He literally died in harness, for he was engaged in the active work of his profession until the previous Tuesday morning.

Jonathan Taft was born September 17th, 1820, in Russellville, Brown County, Ohio. His father, Lyman Taft, was a native of Massachusetts, and came to Ohio in 1818. Young Taft was educated in the common schools and a small academy in Brown County, where he was a classmate of General U. S. Grant, and taught school for four years. In 1841 he began the study of dentistry in the office of Dr. George D. Tetor in Ripley, Ohio, and began practising for himself in 1843 in Ripley. In 1844 he located in Xenia, Ohio, and practised there till 1858. He graduated from the Ohio College of Dental Surgery in 1850, and in 1854 he was appointed Professor of Dental Surgery in the same institution, and occupied this chair until 1879, when he resigned because he had accepted a similar position in the University of Michigan. While connected with the Ohio College he was dean for the larger part of the time. In 1856 he began editorial work on the *Dental Register*, a monthly periodical, which position he held until January, 1900. In 1857 he moved to Cincinnati and established a fine practice, which he relinquished in the summer of 1901, and moved to Ann Arbor.



In 1859 he wrote a text-book on "Operative Dentistry," which for many years was the standard work on the subject. In 1875 he was invited to organize the Dental Department of the University of Michigan, and accepted the Professorship of Principles and Practice of Operative Dentistry.

The first session was held the winter of 1875 and 1876. He was made dean of the department, which he established on the highest educational basis known at that time, and he has ever since striven to keep its standard as much in advance of other institutions, as the professional advancement would allow. Through his efforts the course has been extended from two years of six months and a first year High School preparation for admission, to a course of four years of nine months and a high school graduation for admission, making it the highest educational standard known.

He was a member of every important organization for the advancement of his profession, and probably attended and participated in more dental conventions than any other man. He spent much of his time and means in efforts to advance the profession's interests through dental societies. He was probably the best known man in his profession. Through his college work, his editorial work, and his general interest in professional affairs, he had much to do with advancing professional standards as well as attainments.

As a scientific worker he has never made attainments such as other men who have devoted their energies entirely to this branch, but he has always kept up with every advance made in the scientific, as well as the technical, departments of the profession and, by his suggestions, he has given inspiration and encouragement to many men who were laboring in these directions. He has always stood for high professional attainments and rejoiced in any advancement in scientific or technical dental knowledge.

In his religious life he was a devoted member of the Congregational Church, and occupied prominent places in the councils of that denomination, of a national as well as local character. He was for twenty-five years superintendent of the Sunday School of the Vine Street Congregational Church of Cincinnati, and for nearly as long assistant superintendent of the Bethel Sunday School, a large mission school, having an attendance of from two to three thousand children. He was registrar of the Miami Congregational Conference for nearly thirty years. He was greatly interested in all benevolent objects, and gave largely of his means and time to such calls. As a man he was beloved by all who came in contact with him.

While a man of the greatest will power, he was always kind and ready to make such concessions as would overcome trouble.

In this respect he had a remarkable control of his natural disposition, which was always aggressive and single-minded. To do what he thought was right was always uppermost in his mind, but he readily made such concessions as would seem for the welfare of those about him.

In 1842 Dr. Taft was married to Hannah Collins of Ripley, Ohio, who died in 1888, and in 1889 he married Miss Mary Sabine, of Cincinnati, who survives him. Two sons, Dr. Wm. Taft, of Brewster, N.Y., and Dr. Alphonse Taft, of Cincinnati, and one daughter, Mrs. A. T. Edwards, of Ann Arbor, by the first marriage, are now living.

Funeral services were held at the house, 805 E. Huron Street, and the remains taken to Cincinnati for burial in Spring Grove Cemetery.—*Exchange*.



# Dominion Dental Journal

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No. 12.

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## Original Communications

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### THE BEGINNING OF SUCCESS IN DENTAL PRACTICE.

BY C. E. PEARSON, D.D.S., TORONTO.

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Read before the Toronto Dental Society, November, 1903.

This is a ridiculous position for me to assume, that of writing on "Methods of Success." I have not yet succeeded. The services which I performed a few years ago have scarcely yet returned to me for re-examination. How do I know whether my methods are successful? It is presumption on my part to dictate to this audience on my methods of success. I never had a method. In a seven years' practice methods may be hardly said to be proven, so that I cannot formulate what progress I have made except in one very broad and general principle, which is this: No difficulty is so great that it cannot be overcome. It therefore seems to me that the method of doing things is insignificant and a matter of personal taste; but to be determined to do the right thing just because it is the only thing to be done is most significant. If the thing is right, put a good polish on it—that's success.

As yet, I make no claim to having attained a good polish, but of this I am determined, the details will be humbly but very carefully attended to and by the time the thing is finished the world will have rubbed up a pretty good polish. I do not think any of us will expect more than that.

To be honest with you, I cannot tell you why I have certain patients, unless it is that they never tried any of the rest of you; and I suppose that is why you have patients—they never tried the rest of us. I never asked any one to come to me. I never went to their church. I never met them at a dance, or at lodge, and I will never be a machine boss or a politician, and if I have shot off any fireworks the people got onto the game. So that I am really at a loss to tell exactly the methods of my little success.

However, I am going to tell you what I think a dentist ought to do. The first essential is to know his work and then to have a

manner that convinces those desiring his services that he does. And it is surprising how many people this confident, quiet, self-possessed manner will attract. I think that, next to telling all your patients that other men's methods are obsolete, this dignified, complacent, business-like air is the best. Never get fussy ; never pick up the wrong instrument ; never forget what you are doing, and never tell all that you know. Always assume a kindly, sympathetic, but firm, mental attitude.

Try to talk to people on subjects they are interested in. Throw out feelers for conversation, but always remember that the patient's prime motive is to have good services, and not to be bored by discourses on religion or politics, or society. To fill a tooth and entertain well at the same time is a fine art, and is sometimes best accomplished by saying nothing. A cultivated tone of voice and a choice use of words may not be evidence of a good mechanic, neither is the bray of an ass evidence of a gentleman. I do not believe in affectation, but I do in cultivation. Manner and habit of thought are too valuable to a dentist to neglect their cultivation, and apart from one's personal appearance, which, of course, may be set aside as naturally repulsive or attractive to those we meet—apart from this, I think a sincere, straightforward manner, behind which lies an optimistic spirit, will always win success. The advice of Mrs. Wiggs is *à propos*: "Put all your worries and troubles in the bottom of your heart, sit on the lid, and smile."

Success with patients very often depends upon the first impression created upon entering an office. Cleanliness is the essential. Moth-eaten specimens of birds and animals in glass cases, and the exposed nerves of a dissected jaw are not likely to interest the general public very much, and should enter very little into the decoration of a reception room. Such a room should be bright, have a free-and-easy swing about it, which immediately makes the newcomer feel at home, possibly so much at home that a half hour's wait with one of the new novels or the latest magazine, will be a pleasant recollection after the visit. The color tones should harmonize, the furniture should be artistic and inviting, and there should be every evidence that the man at the head of affairs is familiar with the good things of the earth—not necessarily the extravagant things, for simplicity is one great evidence of good taste. If water color or oil paintings can be afforded, show an interest in these things by purchasing from some of the best local talent. If not, reproductions of the masterpieces are infinitely better than meaningless daubs, and are inexpensive. What is wanted in a reception room is some evidence of the dentist's tastes and capacities, which will be a bond of acquaintance at first sight. Show them you are interested in music ; that you hope some day to be familiar with English literature ; that you are not unaware that some people have a passion for pictorial art ; that you are fond of horses, dogs, shooting, golf, anything, so long as the impression is conveyed that your interests are broader than that of a grovelling "tooth-puller." Let your interests be broad ; friends will follow and a reputation grows while you sleep ; that is, of course, provided you have started with a thorough knowledge of your profession.



One must give good services for is always much more satisfactory giving your best efforts to. Your patients are more liable to attention to the thorough you are, and the longer you allow time; so many hours for work. Quite frequently they go to another while letting your bill stand. In rendering service is unnecessary and undesirable, on the statement stating that items are desired. On my statements I also insist on immediate settlement on completion of the service. It is a great help in a patient's work in a patient's life. Patients.

As for the details which I am pleased to leave that you desired. On my statements I also insist on immediate settlement on completion of the service. It is a great help in a patient's work in a patient's life. Patients.

## SUCCESS IN DENTAL PRACTICE.

BY W. C. TROTTER, B.A., D.D.S.

Read before the Toronto Dental Society, November, 1903.

Had the subject of my paper been described as, "How to earn a living though a dentist," I think probably it would have more completely embraced the few remarks which I am about to make.

Though sad, it seems to be a fact that there are about as few rich, or even independent, dentists as there are perfectly filled roots. In this respect, however, other professions appear also to suffer. Surely professional life must exert some baneful influence on its members which prevents them storing up the fruits of their labor as do men following mercantile pursuits. That dentists, as a class, do earn more than sufficient to maintain nitrogenous equilibrium scarcely anyone will deny, but that very few give palpable evidence of it all will agree. Have we, as a class, any weakness which combats frugality? Well, I believe that the primary cause

average dentist's lack of surplus means is lack of system in the conduct of his business. Unfortunately, if a dentist has a surplus, nine times out of ten he squanders it in a scheme.

It is not justified in occupying space which consumes more than one-third of whatever the nature or situation of the practice may be. I believe that a well-considered influence in moulding the public must form their opinions in appearances. However, excellent dentists on purchasing office equipment which is irreplaceable, as large sums of money are spent on useless articles which have no value. There is no person more gullible than a dentist. This almost any dental agent, book or pamphlet will readily confirm. I now make it a rule to have a reception room to speak with

DOMINION DENTAL

agents of any kind unless I have sent him a great deal of temptation. But he knows how much he is capable of attending to their business. If you have an assistant man, every minute saved means dollars. By the way, I would like to see your collectors call on us.

manner that convinces those desirirfor them. By doing this a And it is surprising how many peopne in a year, and avoids a possessed manner will attract. I than should carry insurance. your patients that other men's methc of carrying, and can judge fied, complacent, business-like air is ntage without the assistance never pick up the wrong instrument ;et her see all comers and doing, and never tell all that you know our own time with them. sympathetic, but firm, mental attitude where, if you are a busy Try to talk to people on subjects th and cents.

out feelers for conversation to say a word in regard to having prime motive is to collect our debts. Few of us are fortunate enough to be always free of debt, but all of us can so arrange matters that there is absolutely no necessity of having dunns sitting in our offices. The presence of these men in our reception room cannot but have an undesirable influence on patients who may overhear them, and their calls also disturb the equanimity of the operator, and unsettle him for his duties. It would be much better for our nerves, our pockets and our practices if we never allowed ourselves to get more than a month in arrears on our debts.

If patients get to suspect that we are slow pay ourselves, it will most certainly not tend to make them pay promptly, and it will lower us in their estimation in any case. Contra accounts are not generally satisfactory from a business standpoint.

In buying all our supplies we should always take advantage of quantity rates and of cash discounts. The saving entailed in judicious buying, compared with careless, unmethodical buying, is startling. All statements of purchases should be carefully kept and filed away until the monthly account arrives and then used to check off the various items, and thus verify their correctness. Receipts should always be filled away alphabetically and kept for at least five years. All payments should be made by numbered cheques and a comprehensive note of same kept on the stub of the cheque book, for ready reference and to always maintain the accurate balance in the bank, and thus avoid the very undesirable oversight of issuing a cheque for which no funds exist to pay it when presented at the bank.

Of course, a cash book containing items of all monies received and paid out is an essential to any well managed business or profession. A dentist may economize his time by having his lady assistant attend to his banking, his book-keeping and his accounts. A cash book and an appointment book are the only books necessary in a modern dental office, as the chart system takes the place of all other books. The chart system is a time-saver of great importance and accuracy. It saves transferring from day book to ledger, and saves going over a lot of unfinished and paid accounts every month to select the accounts which are complete and ready to be rendered. By this system the work which is finished is kept in a separate compartment, and always available. I believe that accounts should be rendered monthly, except in very special cases, and I think we lose nothing and gain a great deal by impressing on our patients the necessity of prompt settlements.



Work which has been paid for is always much more satisfactory than work which is owed for. Your patients are more liable to desert you the more lenient you are, and the longer you allow their accounts to stand. Quite frequently they go to another dentist and pay him cash while letting your bill stand. In rendering accounts an itemized statement is unnecessary and undesirable, but it is well to have a note on the statement stating that items may be seen at the office if desired. On my statements I also have a note asking for immediate settlement on completion of the operation, and I believe it is very beneficial in its results. It is poor policy to put any considerable amount of work in a patient's mouth about whose ability to pay you know nothing. Patients, who wish considerable work done, have usually been recommended by someone you are acquainted with, if they are all right. A good collector, such as I have found Richard Tew to be, can usually give you valuable information on suspicious cases. If you discover an applicant for your services has left a brother practitioner without any apparent reason, it is a wise precaution to telephone him and find out if the patient settled with him. Do not work for people who are poor pay because you fear offending them by refusing to do so, and thus lose their influence. Their influence is usually of little value, and certainly not worth your time and material. People generally esteem a man more highly if they see he is business-like in his methods, and has no time to waste on profitless work. When patients consult you for the first time, always take down their full name and address on the examination chart, and if before their next appointment any doubts may have arisen in your mind as to their ability to pay, ask them for at least a deposit. By care in these matters I have reduced my losses in bad debts to about one per cent. of my total business.

A good appointment book should have ample space set apart for the morning, afternoon and evening of each day. Not that I think it wise of any man to operate at nights, but it is a convenient space in which to enter evening engagements of any kind. If this was done dentists would probably have a better reputation for punctuality. It is not advisable to make appointments for more than eight hours daily. If a man has a larger clientele than he can comfortably attend to in eight hours, he should raise his fees sufficiently to make his eight hours as remunerative as if he was working nine or ten hours at his former fees. By this method he will weed out the less desirable element of his practice and at the same time preserve his health and increase his wealth.

In the matter of making appointments, I think the lady assistant should be so trained as to be able to use sufficient judgment to make all appointments either by phone or in person. With a thoroughly efficient assistant it should seldom be necessary for an operator to leave the chair to speak at the phone.

It is only necessary to set aside a few minutes for a patient's first appointment, as at that sitting an examination is all that is desirable, with the exception perhaps of the insertion of a treatment or of a separating medium. The results of the examination should be accurately registered upon the diagram of a dental chart. By

means of this examination chart, which is filed away alphabetically in the unfinished work compartment, a great deal of time may be saved by always knowing exactly what work remains to be done for each patient, and in this way preparations and arrangements both in regard to time and material can be most economically arranged for before the arrival of the patient at the next appointed time. Except in special cases I think it unwise to give patients longer sittings than two hours. Whatever time is calculated on for each sitting should be carefully set aside in the appointment book, in order to save appointments conflicting. This may readily be managed by putting down after each appointment the exact time you expect to finish that sitting, as a guide to the assistant in making the next appointment. With experience, it is easy to gauge within a few minutes the time necessary for various operations.

Personally, I do not believe in having the reception room crowded with patients. It may be an advertisement, but it certainly tends to hurry and unnerve the operator, besides causing an immense loss of time. If a great deal of unnecessary treatment is done away with, and the appointments arranged methodically, this nuisance of a crowded waiting room can usually be done away with. It is an absolute waste and loss of time and money to put in unnecessary treatments. Patients do not appreciate them, will not pay for them, and will not put up with it these days when time is so precious to everyone. The time consumed by some men in trying to get rid of their patient for the exigency of the moment, by the insertion of an unnecessary treatment, would, with the addition of a few minutes more, be sufficient to prepare a cavity or insert a filling for which there would be some remuneration.

Patients should be given to understand, on their appointment cards or otherwise, that appointments broken without adequate notice will be charged for at the rate of one dollar for each offence.

In the matter of collecting accounts good judgment must be exercised. Unless in the case of old family accounts I think that an account not settled within three months should be sent for by some one from the office. If this does not bring satisfactory results within a couple of months, give the account to a professional collector but not to an agency of any kind or description. Never give it to a lawyer until all other means fail, as the costs may be more than the account is worth. Suing is the most expensive and most unsuccessful method of collecting, as most people that will allow such an account to be sued are usually proof against suit, and the result is that you throw good money after bad. Before giving an account to a professional collector make up your mind thoroughly that you will let him manage the account exactly as he sees fit and that you will not interfere, even though the patient comes to you on bended knees. A collector is a better judge of such cases than you are and profits by his former experiences. Always be prepared to stand by the fee you have charged, it is a great sign of weakness to acknowledge an overcharge by making a reduction.



Much time will be saved by not allowing patients to bring any of their wraps or fixings into the operating room. Time will also be saved by not allowing their friends to sit in the operating room.

I have been requested to speak of the matter of fees. It is an impossibility to set down any arbitrary scale of fees. I think that a dentist practising in Toronto should receive at least four dollars per working hour for time and material. Necessary treatments should be charged for at the rate of fifty cents each. For ordinary cleaning with pumice, etc., one dollar is a fair charge. Where deposits are removed with scalers, I think a minimum charge of two should be made, but such operations as this should be charged for according to the time consumed, at not less than four. The per hour. An adequate fee for crown work of any description of ten dollars per tooth, and should not be less than eight dollars. I do not believe any man can afford to pay proper attention to the details of making a set of artificial teeth for less than ten dollars or of resetting them for less than five dollars. A repair, unless very simple, should be worth two dollars. Gold fillings should be charged for according to the time consumed. Alloy fillings at one dollar each are reasonable enough. Devitalizing and filling roots, together with an alloy filling should certainly not be done for less than three dollars. These are my own ideas and I expect to hear them combated, but it would not be beneficial for us to all think in the same strain. In this respect I will quote a few appropriate verses I just came across in the *Booklover's Magazine*.

### ARE YOU YOU?

Are you a trailer, or are you a trolley?  
 Are you tagged to a leader through wisdom and folly?  
     Are you Somebody Else, or You?  
 Do you vote by the symbol and swallow it "straight"?  
 Do you pray by the book, do you pay by the rate?  
 Do you tie your cravat by the calendar's date?  
     Do you follow a cue?

Are you a writer, or that which is worded?  
 Are you a shepherd, or one of the herded?  
     Which are you—a What or a Who?  
 It sounds well to call yourself "one of the flock,"  
 But a sheep is a sheep after all. At the block  
 You're nothing but mutton, or possibly stock.  
     Would you flavor a stew?

Are you a being and boss of your soul,  
 Or are you a mummy to carry a scroll?  
     Are you Somebody Else, or You?  
 When you finally pass to the heavenly wicket,  
 Where Peter the Scrutinous stands at his picket,  
 Are you going to give him a blank for a ticket?  
     Do you think it will do?

I must apologize for the length of the paper, but I thank you for your attentive indulgence.

## DENTIST'S ASSISTANT AND MANAGEMENT OF PATIENTS.

BY H. E. EATON, D.D.S., TORONTO.

Read before the Toronto Dental Society, November, 1903.

No doubt many a proficient dentist has limited his sphere of action and lessened his opportunities of serving humanity, by failing to give due attention to the subject we have in hand to-night. It is important that we study to find the best methods of dealing with diseased conditions of the teeth, it is equally important that we give due attention to the management of our practice, that our acquirements may be used in the largest way for the benefit of suffering humanity. For it is not the information the dentist has acquired that gives relief to the suffering, but the putting of his knowledge into practice.

One's practice is in a large degree what one chooses to make it. I am convinced that there are those who, by extreme economy of equipment, for instance, limit their opportunities for service by turning patients from their door. They are working on the false plan, that when their practice will permit, they will improve their equipment. It is like the case of the desert, which is a desert because it receives no rain, and no rain falls on it because it is a desert.

I have been asked to discuss two points in relation to this subject: (1) The Assistant. (2) The Management of Patients.

I would strongly advise every dentist to employ a lady assistant, whether his practice is large or small. It will be the best investment he ever made. Why do I say this? Well, first of all, the presence of a woman in your office gives a different atmosphere to the place. A large percentage of our patients are women, and among them are those whose timidity makes it necessary to summon all their physical and mental powers to bring them to the point of visiting the dentist. But when a timid woman is met there by one of her own sex, she is reassured and takes fresh courage. Then again, a woman has a deftness in the arranging and adjustment of things that man does not possess. And, by the way, this last thought may be worthy of serious meditation on the part of any unmarried man present, even from other than a dental standpoint.

But apart from this let us look at it from a purely financial standpoint. "Time is money." If your assistant can save you time, she earns you money. How much of your time would be taken up, if you answered every telephone call, made every appointment, received payment of accounts, and turned away every book agent—and good ones cannot always be disposed of quickly—and did a hundred and one things which take time and interfere with your work? Take a pencil and paper and figure it up for one day and see how far the cost of your lost time would go towards paying the salary of an assistant.



I trust I have already suggested enough of the duties of an assistant to establish her beyond doubt in the dentist's office.

As to the qualifications of an assistant, I would say it is very desirable that she be of pleasant and sympathetic disposition—even-tempered and business-like. But, above all, extremely neat and cleanly in attire.

We shall now consider more definitely, the duties that may be performed by her. I suppose there could hardly be found two dentists who employ an assistant in just the same way. It may be of interest then, to confine my remarks to a description of my own way of working. The assistant arrives at the office at eight o'clock in the morning, dusts and puts the rooms in order, and sees that everything is ready for receiving the first patient. I use the index card system for my examinations, records, and accounts. The cards for the day are arranged in a separate section in the order of the appointments. A list of the day's appointments and the time assigned to each is made out and placed upon my cabinet. The patient arrives; is ushered to the chair by the assistant, who also takes the patient's record card and places it upon my cabinet. I now have before me a record of the work which has been done, the work which is to be done, and the time in which I have to do it.

The assistant remains close at hand, ready to do anything that will save a moment's time for me. By closely observing the different operations, she has learned the successive steps, so that when I begin a certain kind of work, she proceeds without further instruction to prepare for the different stages of the operation. I try to avoid, as far as possible, giving instructions to the assistant within the hearing of my patient. If, for instance, the operation be the insertion of a gold filling, she brings to me the rubber and punch, having cut the rubber into a convenient size beforehand. While I am punching the holes in the rubber, she places a clean linen across the patient's chest, and is ready to adjust one side of the rubber-dam holder while I attend to the other. I proceed to prepare the cavity, while she prepares the gold. When the cavity is ready for the insertion of the gold, the assistant removes every instrument from the bracket that will not now be in use, cleans them, and places them back in the cabinet, puts a disc-holder in the engine handpiece, and moistens the pumice. Thus, everything is in readiness for the finishing of the filling. When I begin the finishing, she is ready with a little vaseline to touch the disc, and during the finishing process removes the gold pluggers from the bracket, so that when the operation is completed there is little left for her to do in order to get the chair ready for the next patient, and therefore very little time lost in making the change.

When patient No. 2 is ushered to the chair, the assistant arranges appointments, etc., with patient No. 1, and is soon at her post again. In the operation of inserting an amalgam filling, just before I have finished the preparation of the cavity, I take my screw-top mercury holder, turn up an amount of mercury which, when mixed with the alloy, will make the desired amount of amalgam for the case in hand. My assistant begins the mixing at once, and has the amalgam ready for me when the cavity preparation is

completed. And so with every operation, I study to have my assistant do everything that it is not necessary for me to do, and that will save my time. In short, the assistant is to the dentist another pair of hands.

In addition to the duties at the chair there are such matters as attending to the telephone, making appointments, receiving payments of accounts, etc. In all this, understand, she does not act merely as a messenger to bring matters to me for adjustment, but whenever at all possible, settles these matters herself and allows me to go on with my work undisturbed. She does the banking and takes full charge of the cash, and is held responsible for its correct balancing. She also looks after the stock and keeps it replenished. Near the end of each month she makes a list of the finished accounts; I check the ones I wish sent out, she makes them out and sends them.

There are many other minor duties performed by the assistant which it is not necessary to describe. Suffice it to say, the assistant holds a very important position in a dental practice.

I shall now consider the second division of my subject, viz., "The Management of Patients," and, as I fear my paper has already been too long, I shall content myself with just one or two suggestions under this heading. I said in the beginning of this paper that one's practice is in a large degree what one chooses to make it. That is applicable in the matter of handling patients, as well as in the equipment of one's office. A man may, by his cheap, shoddy conversation, drive patients from his door, and thus limit his opportunities for service, as truly as in the case before stated where he accomplishes the same result by his extreme economy and lack of interest in his office equipment.

One's manner and dealing with patients should be frank and upright, thereby gaining their confidence. When the confidence of one's patient is secured other matters right themselves. Let the conversation at the chair, when on a dental subject, be such as will cause your patient to hold the profession in the highest respect. Do not seek to impress your patient with the idea that every day is bargain day at your office, and that "really you are not making anything out of the job." Rather impress your patient with the fact that you perform the operations just as expertly as you can, and expect to be properly paid for your services. Your patient will pay the fee more willingly in the latter case than in the former. Never worry about a patient who comes to your office, gets an estimate on a piece of work and tells you she can get it done cheaper around the corner. It often pays to let such an one go to the other man. Avoid having too many patients come at the same hour. It may look well to see your reception room full, but you will not do as much work, and other people's time may be as valuable as yours. Never allow yourself to be drawn into a conversation with your patient which reflects upon the last dentist she visited. She may tell your neighbor what you said about him.

In conclusion, let me say with emphasis, never lose your temper with your patient, however provoking the circumstance. You may



get some satisfaction out of it in the few minutes you are telling her what you think of her, but forever after you will regret your folly.

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DISCUSSION ON DR. EATON'S, DR TROTTER'S AND  
DR. PEARSON'S PAPERS.

Dr. McDonagh, in opening the discussion on the three papers by Dr. Eaton, Dr. Trotter and Dr. Pearson, said that he had thought the subject of "Success in Practice" would have been treated from a slightly different view-point. Success in dental operations, and success in the management of difficult diseased conditions were more to be desired and gave a greater source of satisfaction than mere financial success, while, of course, the latter must not be neglected, because upon it, in a measure, depends the accomplishment of the former. However, anything the three eminently successful gentlemen, whose papers have just been read, have to say on this subject, is of great value. Dr. Eaton, who has come to this city only a few years ago, has made a place for himself among the best practitioners of the land, while Drs. Trotter and Pearson have followed in practice their fathers, whose efficiency in practice have been known to the profession and the people of this country for many years. Success in dentistry cannot be attained without study. Every dentist should be a systematic reader, and to do this, no time should be spent on dental operations at night. Working at dentistry at night as well as in the daytime, is sure to undermine the health. At a meeting where a business man read a paper the other evening, he said: "To be successful he must have the goods to sell, he must be willing to sell, they must be in a proper condition to sell; he must not make promises he is not willing or able to keep." These conditions apply very well to the dentist. He must have the knowledge, he must be willing to use it, he must have it properly organized for use, and he must not undertake what he cannot do. A dentist may travel on his shape for a time, but failure is certainly his if he has nothing else to recommend him. He must be genial, courteous, and deserving of confidence, and above all, capable of giving his patients good service.

The visitor's book, an invaluable assistance to me, has not been mentioned by the essayists. The assistant writes the name and address of every person who calls, in a book kept for that purpose. The value of this as a reference is plain to all. In closing, Dr. McDonagh complimented the essayists for their efforts.

Dr. Seecombe.—Commercial success seems to be the keynote of the essays just read. Such success is largely dependent upon economy in time, economy in expenditures, economy in buying, economy in mixing materials, and care of instruments and appliances. In many offices there is double the quantity of materials mixed as there is used. Dentists are often induced to buy worthless instruments just because the dealer has told him that all the best dentists have it; in fact, it is quite indispensable in the office of Dr.

So-and-So. The fee table submitted by Dr. Trotter is quite within the mark.

Dr. Walter Willmott called the attention of the Society to the waste of time occasioned by the telephone. Often a dentist is called to the telephone, only to be told to wait five or, perhaps, ten minutes until the person who wants him is called, finishes what he is at, and comes to the telephone. The dentist's time is as valuable as anyone's.

Dr. Wunder, said he had not received very big rewards for his services in this world, but expected much in the hereafter.

Dr. McLaughlin congratulated the essayists because they wrote good papers and kept to the text. An assistant is invaluable in a practice. She must be neat, clean, intelligent and anticipate every want, and, as far as possible, attend to all matters of detail about the office. She must be of such a character that patients will be glad to meet her. There should be no lowering of fees. A dentist cannot give good service and make a living on less than \$4.00 an hour.

Dr. Grieve thought that among the down-town offices the fees must be much less than \$4.00 per hour, because the patients in that district would have to do without dentistry, or have it done at a less fee.

Dr. Trotter suggested that in such cases they might be sent to the College.

Dr. Webster said that a consultation fee should be collected when advice is given. As a rule, dentists rarely think of what it has cost them to obtain the information they give.

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## OFFICE AND LABORATORY (1925).

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Being a few reminiscent remarks gathered from the files of the *Dominion Dental Weekly* (then *Journal*), beginning as far back as 1903 (with apologies to the author of "Looking Backward").

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It is of absorbing interest to trace the growth of our vocation within the last twenty years, for the dental profession has truly kept pace with her sister sciences and with the rapid growth of our fair Canada. Since about the beginning of the present quarter-spent century, when the great natural resources of our country, coupled with that dauntless pioneering spirit of her hardy sons, gave to us and the world the benefit of that great prosperity at home and influence among the other nations, what expansion of our resources has taken place! What a difference in education compared to that day with this, with each of our provincial schools, fathered by the Royal College of Ontario, under our Dominion Board of Directors, which seeks to bestow upon their several student bodies the fruits of accumulated dental knowledge and experience in five years! What a steady uplift in the character and ethical



relationship of its practitioners since when, in 1915, that body wisely raised the matriculation standard to University B.A. degree in company with a similar move on the part of the Dominion medical faculty. And coming more closely to our personal satisfaction, what strides have been taken in the matter of those appliances and aids to the practice of dentistry found in the modern dental surgery, and the increased skill and knowledge, advances in treatment of pathological conditions and the increased systematizing of daily practice in all its numerous branches. Looking back over the years, one is forced to the conclusion that these modernized methods have done by far the most in placing dentistry what it is to-day, and what it should be always, a vocation requiring the highest order of skill, knowledge, artistic temperament and high order of mental attainment of its sons, bringing to each and all an income quite in keeping with the work they are called upon to do.

Speaking of modern instruments and appliances, possibly the greatest factors in their advancement have been the exploiting of the possibilities of electricity and compressed air, and the steady aim on the part of manufacturers to eliminate from the modern office that bewildering array of levers, cords, tubes, cables and wheels which caused one of the early dental writers of the century to designate the surgery as an "aristocratic machine shop." How little the modern graduate appreciates the luxury of living in modern times when, on graduation and engagement of suitable offices, places his contract for equipment with one of our great supply houses, the agents of which turn them into what appear to be luxurious apartments; but, hidden even to the suggestion, are all those swift servants to his will, such aids to the busy dentist, and formerly such terrors to the nervous patient.

In our modern chair we have a great deal to be thankful for. Its graceful outlines, absence from view of steel or iron parts, heavily padded and comfortable interior, complete control of all its several movements by one lever, which regulates the compressed-air mechanism which actuates these movements, suggest a comfortable easy chair rather than the place of horrors and torture which the imaginative mothers and children of 1903 used to delight to describe. The modern operating stool, in harmonious design with the chair, also actuated in its different movements by simple hydraulic mechanism actuated by one lever, and arranged on ball-bearing casters, so that the modern dentist finds it necessary to dismount very few times in the day. With such accessories, we wonder how in early days we were able to stand the strain of pulling and hauling necessary for the old-fashioned oil-chair, and the sight of its machine-like appearance. And what a balm to our aching backs was the compressed-air stool with its facility, so sadly lacking in the old stools, namely, that of keeping it away from under our feet. All this, of course, was rendered possible by the civic compressed-air plant, an outgrowth of the great Lake Simcoe water supply, which has placed our city in its present commanding position of prosperity.

The modern dental cabinet, so different from the old-fashioned

structure, is in perfect harmony with the chair. Of simpler and more massive design and construction, and general artistic appearance, it suggests more the cabinet of rare bits of bric-a-brac and curios than anything else. Different from its antecedent, the modern cabinet is, of course, made in two departments, the operative, for the extracting and anesthetic apparatus, various antiseptic compressed-air sprays, instrument supplies, infrequently-used medicines (all in one separate drawer), clean and soiled linen, and the prosthetic, for the modern plaster spray, compressed-air lathe-head, electric wax spatula, files, stock, etc., and part of which opens out as a bench with receptacle for filings, etc. We might note, in passing, the modern gas apparatus, operated by touching a lever on the chair, disclosing a hidden chamber just under the floor, with the bottles, pressure-gauges, bags, foot keys, etc., to which connection is made with the modern face-piece; also the modern plaster compressed-air spray, which deposits liquid plaster on the parts to be modelled, setting immediately, superseding that excellent sample of antique and clumsy dentistry, the old impression cup. This, of course, was rendered possible by the discovery of that patent liquid plaster, which remains molten until brought in contact with air and  $K_2SO_4$  spray.

Of course the cabinet is not the chief accessory to operative dentistry as it was in years gone by, and, as we all know, the evolution of the bracket table and increase of its present sphere of usefulness, is interesting matter.

In years gone by, it is hard for us to imagine how a dentist was able to perform all his operations in gold plastics, excavating, scaling, and, after which, how his single table must have looked, other than if his instruments had all been emptied thereon out of a valise. But with the modern sectional bracket, mounted on the chair, and bearing small brackets for each class of operation (set one above the other and each swinging out in front of the patient when in use), namely, No. 1, and uppermost, excavating, scaling, pyorrhea and burring, bearing cotton pellet and waste traps set in flush on the table; No. 2, with root canal and medicines in common use, bearing flush cotton pellet and waste holder, and electric root drier, and electric glass slab and sandbath; also flush for warming medicines, syringes, etc.; with the compressed-air abscess syringe, engine drills and other instruments and supplies for the treatment and filling of root canals, including that new product the air-drying antiseptic root-filling cement, which is kept in air-tight tubes, and slowly sets when liberated in contact with the air; No. 3 section, with the gold filling material, with the flush annealer of prepared asbestos, with rheostat; gold instruments, including the new endless strip, handpiece attachment, polishing material, strips, discs, and other incidentals to the operation of gold filling; No. 4, bearing the plastic instruments, orthodontia instruments, with section for screwposting materials, inlay materials and instruments, stones and polishing cups, dam instruments and floss silk holder, and last, but not least, No. 5, the lowest and diagnosis bracket, so arranged to be in position always and not interfere with the other bracket tables. This, of course, carries flush cotton waste supply,



and flush floss silk supply, explorers, mirrors, mouth and antrum lamp socket for adjustment of X-ray apparatus, warm and cold water jet, hot and cold air jet, which can be held in fixed position by a double ball and socket movement, to which is attached also the operating lamp.

Last, but not least, the direct-driven electric engine, is worthy of a few remarks. About the end of the year 1903, a French dentist in Paris invented the predecessor of this most neat and compact little instrument, supplanting a most crude and cumbersome machine of many yards of loose electric wire and cables weighing 25 or 30 lbs., and standing on the floor. His machine was driven by clock-work, and it was not long before a small, light electric motor, which fitted into the slip joint of the handpiece, and step by step it has been improved until we now have the highly efficient and perfectly insulated direct-driven engine. It seems like a reflection, nevertheless it is true, that at those times these now common methods were long in use in manufacturing establishments before their introduction into dentistry.

Another feature in connection with the modern bracket table, is the precaution taken for asepsis; the instruments for which sterilizing is necessary, being, of course, held in the neat porcelain flat dishes with the racks, and kept in duplicate, and at the close of each operation carried out and placed in steam jacket sterilizers, while those just removed are replaced in the table.

Another word in passing, regarding the experiments which are being carried on, and which seem to tend toward the hope that we may soon have iridescent solutions of polonium, which would completely displace the ordinary electric mouth lamp; all that would be necessary being to direct the patient to rinse out the mouth with polonium solution, filling it with soft yellow light. Still, in considering this innovation, one has to face the probability of making our patients resemble the time-honored Halloween pumpkin, which has to be considered. The chief remaining feature of the operating room is, of course, the modern combination foot switch-board and footstool. In earlier years the footstool was used more as an aid to a restful position to operating, and gradually, as the various compressed-air and electric devices were introduced, the dentists of former times realized that dropping instruments and hunting for levers two or three hundred times a day meant time and money, and, as a result, we have the modern and perfected appliance of to-day.

The modern fountain cuspidor has not shown any radical change in its designs, although much more efficient and smaller and capable of being placed in much more convenient positions.

In the laboratory again, we find the same advance as noted. In the National Dental Museum at Toronto are still to be seen the primitive affairs upon which dentists in olden times were accustomed to do their gold, plaster, rubber, orthodontia, porcelain, etc., upon. Of course, this unsystematic and crude method has been done away with; the modern sectional dental laboratory cabinet system taking its place, which idea was put into force after the usefulness and adaptability of sectional

bookcases was so well shown. These sections have the perfect locking device which insures rigidity, and are made in sections designed for the special class of work which they are intended, and thus the dentist has the advantage of quickly installing laboratory furniture, just according to the needs of his practice. Most commonly used of these are the *rubber and polishing section*, with compressed-air dust exhaust, electric spatula for manipulating that most useful rubber, which has the consistency of wax, and does away with the old waxing-up and boiling-out nuisance; the *gold soldering section*, containing trays and drawers, the necessary apparatus and concealed electric wiring and plumbing for gas and compressed air, with connection for pneumatic swaging hammer; the *plaster section*, containing the ever-useful plaster spray, mechanical model trimmer, flasks, etc.; *sand molding and heavy swaging section*, also with dust exhaust; the *porcelain section*, with electric furnace and supplies, with the electromagnetic packer, doing away with the old time "tapping down" of porcelain; the *metal reclaiming section*, for reclaiming scrap, with the necessary apparatus and exhaust hood; the *orthodontia section*, with the distinctive apparatus and supplies of that art and science, including the highly necessary watchmaker's lathe, and also specially designated sections for research in microscopy, biology or chemistry, not to speak of the lesser used sections for more highly specialized branches in dental laboratory practice. The modern porcelain furnace is deserving of some mention, having different sized replaceable muffles adapted for the same base, the controlling mechanism in a more accessible place, and those most useful attachments, the portable open hearth for heating and soldering bridge work, etc., and the cylindrical muffle for graphite crucibles for reclaiming work, and electric tray attachment for heating almost anything to any temperature, almost identical with the common cooking disc.

Thus we have here attempted to roughly sketch the progress which has been made in the last twenty years in this very potent, if not all-important, feature of the many-sided vocation that the practice of dentistry is to-day; and, in looking at our past progress on all sides, and straining our mental vision toward a glorious future, we are moved with the heroic impulse of Tennyson's Ulysses, who exclaims:

"I am a part of all that I have met;  
 Yet all experience is an arch where thro'  
 Gleams that untravell'd world, whose margin fades  
 For ever and for ever when I move.  
 How dull it is to pause, to make an end,  
 To rust unburnish'd, not to shine in use!  
 As tho' to breathe were life. Life piled on life  
 Were all too little, and of one to me  
 Little remains: but every hour is saved  
 From that eternal silence, something more,—  
 A bringer of new things; and vile it were  
 For some three suns to store and hoard myself,  
 And this grey spirit yearning in desire  
 To follow knowledge like a sinking star,  
 Beyond the utmost bound of human thought."



## Selections

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### PORCELAIN AND ITS POSSIBILITIES.

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BY D. O. M. LE CRON, D.D.S., ST. LOUIS, MO.

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Read before the St. Louis Dental Society.

We have heard much the last few years on porcelain work, and I am gratified to say that every year new advocates are added to the list of porcelain workers. I predict that in the very near future little gold will illuminate the mouths of cultured persons. As patients become educated to this artistic branch of dentistry, so will their demands be for the work. Gold crowns and large gold fillings in the anterior teeth are unsightly, and a taste only of uncivilized races. The people have become so accustomed to these exhibitions of gold, and even possessed of the idea that it is the only way to preserve their teeth, that they submit to the unsightly work.

The pioneers of modern porcelain work had crude appliances and materials at their command, compared with what we have to-day. They were men who thought and experimented, and I assure you they met many failures. Those who had the perseverance and indomitable will to surmount the many difficulties in time reached their goal. It is said the most enduring things are slow of growth; so it has been with porcelain. To-day we are convinced that it is the material of the future with which to make *bridges*, *crowns* and *fillings*. It is no longer a theory; it is a fact, and a success beyond question.

During the last fourteen years I have devoted much time to this class of work, experimenting with the different porcelain bodies and furnaces that gradually were put on the market. So I will not take up your time telling how the various crowns should be made, bridges constructed, inlays formed or continuous-gum dentures baked, as I could only reiterate what others have said. Suffice it to say that this work can and has been done successfully in competent hands. To reach the highest point of success and be master of the situation, we must be master mechanics to construct our abutments and framework to receive the porcelain body. Learn to manipulate the porcelain to retain its form, ascertain the true fusion by experimenting; calculate on the shrinkage, to maintain its outline; a thorough knowledge of the furnace; and last, but not least, a good eye to blend the colors. This can only be accomplished by repeated experiments and a determined effort on our part to master the situation. To those of the profession who are merely looking on the "filthy lucre" side and throw their work together in a slipshod manner, not caring for the artistic or natural appearances and only aiming to get the work off their hands I would say, *Keep hands off*, for you will surely lose what little reputation you might chance to have. All can learn the art if they have

the perseverance and that ambition to be in the front rank. We that have passed through our experimental stage can aid you and shorten your road if you only get down to work and try to master the art. Many little details are connected with porcelain work, some in an indirect way. To the beginner I would suggest, get your furnace, test it and become familiar with same. It is simple: 28 to 30 gauge pure platinum wire wound inside the muffle, covered with pure fire clay. The nearer the wire is imbedded to the inside surface of the muffle, the better it produces the required amount of heat; also to produce an excess of heat the wire should be wound closer, and the smaller the wire, for same purpose, on account of it having a greater resistance. To produce uniform heat throughout the furnace, the ends of the muffle should be coiled closer than the centre, on account of the radiation of heat accumulating in the centre. A rheostat should be connected to regulate the heat and the safety of your furnace. No pliers or any kind of metallic instruments should be used in the muffle when the current is on and at a high heat, as you are liable to have a short circuit. Dr. Ellenbeck, of Salt Lake City, in the January number of *Cosmos*, gives a good description of constructing a furnace. It will pay you to read the article, as it will show its simplicity, etc.

The little appliances to the furnace for supporting the work you can make yourself. Get some pure fire clay and make your moulds for the design intended. I would suggest passing a strong magnet through your clay before mixing it with water, as all fire clay possesses more or less iron, and it should be as free from iron as possible. Work your clay thoroughly, oil your mould, press your clay in mould and absorb the moisture, then by a little jarring of the mould the clay will drop out. After thoroughly dry you can burn it in your furnace. This may seem to many of you too much trouble, but I wish to say that in handling the clay you learn to manipulate porcelain at the same time. You can turn up or mould any kind of small retorts or crucibles that may be desired. I have here a small crucible that I made to fuse the Jenkins' body. I will pass it around. With this you can experiment, or if you wish, can make inlays by using Jenkins' body. Any blow-pipe or Bunsen burner will fuse it, as it only requires 1580° Fahrenheit to flow it. I cannot refrain from mentioning that my experience with the low-fusing bodies has not been satisfactory.

I consider that it is impracticable to attempt contour filling with an inlay body that will not stand up as carved under a high heat. Low-fusing bodies have a tendency to assume a globular form when fused frequently. Then, taking into consideration the great percentage of shrinkage—33 and more per cent.—it is useless to waste words in regard to its usefulness, when we have good high-fusing bodies at our command that you don't have those objections to contend with. Suffice it to say that our best porcelain workers in this country (and I am proud to say America leads all other countries), such men as Taggart, Reeves, Nyman, Wassall, Land, Head, the Capons and others, advocate and use high-fusing porcelain bodies.

The technique of carving and placing your colors in all-porcel-



lain work must be studied to bring out an artistic and finished piece of work. It is a good idea to experiment with porcelain on a glass slab. Mix up a batch of porcelain and learn to carve some kind of a tooth, and continue to do so until you are satisfied you have attained that proficiency that will enable you to produce any shaped tooth. Your next step will be to bring out the natural shades of the teeth by adding the different colors on in layers and studying the effect one color has on another. Examine closely the underlying colors in the natural teeth. It will surprise you what a variety of colors you can find. It may take some practice to detect the colors, but close observation will develop your eye to perceive them, and just as you can see these colors and then produce them, your work will be finished accordingly. To produce these colors requires much experience. It is not to be learned by reading. Anyone wishing to become proficient must get it by constant experience. Unlimited shades can be produced by changing the proportions of color, and the proper blending produces natural effects. The inexperienced cannot expect to produce good results with his first attempt, and I don't believe it can be taught, except by experiment, as I consider it the most difficult problem in porcelain work. Charles Martel says: "The source of color is light, which is either natural or artificial. Natural light derived from the sun is termed *white* or solar light. Artificial light is obtained from burning bodies, and is generally colored." Colors are distinguished by artists as pure, broken, reduced and gray or dull. The pure colors comprise those which are called *primary* (red, yellow and blue), and those which result from their compounds, *secondaries* (orange, violet, green and their hues, such as violet, red-orange, orange-yellow, green-blue, etc.). The three primary colors, red, yellow and blue, are the source of all other colors derived by mixture. If you mix blue with yellow, green is produced; blue with red yields a violet; red mixed with yellow, you get an orange, etc.; a gray can be produced by equal proportions of red, blue and yellow; with white and black you can produce any shade of gray, according to proportions mixed. The causes of the peculiar colors of different substances are usually accounted for by saying that all bodies *absorb* certain colors and reflect others, the color absorbed being always complementary to that reflected. Thus, if a body is green it will absorb or take up the red rays and reflect blue and yellow, and so on with the other colors. It would be difficult to lay down a rule to master this shade problem, and I will not attempt it. My experience has taught me that the only method to pursue is to become expert in the shade problem is to get down to work and experiment until you master it.

I want to make a few remarks on gum enamels. I think all of you who have had any experience with the gum enamels that are put on the market by the manufacturers will agree with me that they produce an unnatural pinkish gum, and as a rule very unsatisfactory results are obtained by same. I have experimented quite a little along that line, and am safe in saying that I can produce a gum enamel that will be a perfect imitation of any natural

gum with which you come in contact. It is also the shade problem—the results obtained by combining several gum enamels of different manufactures in certain proportion with small quantities of White's inlay body. A little experience will teach you the proper proportion to mix to get perfect results.

We will next take up the fusion of porcelain. It is of the utmost value to learn the true baking or fusion point. If under-baked it will be brittle, flake off and not withstand the force of mastication. In over-baking you produce porosity and extreme weakness, and your work is a total failure. The question is asked how to arrive at true fusion. Some say "the eye can detect it"; others, "pure gold and a certain time after it melts"; while a few advocate "a given time for the furnace to run." To the first I will answer that it is impossible to detect the true fusion with the eye. When your furnace assumes the orange color of heat, 2100° Fahrenheit, an eagle's eye will not determine it correctly. As for the second method, with the melting-point of pure gold as a guide, you know you have 2016° Fahrenheit; but above that, say 3000° Fahrenheit, you are obliged to approximate your heat, and your electric current will vary. The third method is likewise susceptible to variations of your current. I have used a thermometer placed in a fire clay bulb with a heavy platinum wire extending into the furnace, but fluctuations in the temperature of the room varied so that I was compelled to abandon it. I have used the mouth-mirror to reflect the light; also used Custer's arc light. I found both good until they reached about 2100° Fahrenheit. The furnace then assumes the orange color, and the higher you go the brighter it becomes and it gradually reaches a white heat, so that it is impossible to detect a true fusion. I used pure gold to detect a given degree of heat, and then timed my furnace accordingly, with quite good results, judging the time required for the proper fusion on the color of the furnace.

Three years ago I had occasion to get some fire clay from one of our brick manufacturers to make a number of small retorts and crucibles for some of my experiments. Upon inquiry I learned they used Seger cones, set in series, as guards to ascertain the heat of their kilns. I concluded these cones would be a great aid in securing the correct fusion with the furnace, and I procured a number ranging in heat fusion from 1000° to 2800° Fahrenheit. After many trials (baking a certain body and crushing the same until I got the greatest possible strength), making a note of the number of Seger cones and the crushing strength, I am positive of the true and proper fusion of the various bodies on the market. In August, 1902, I concluded to ascertain the fusion points with Le Chatelier's thermo-electric pyrometer, using the Seger cones as guards. The principle upon which this pyrometer is constructed is the measurement of a current of electricity produced by heating a couple composed of two wires, one of platinum and the other platinum with 10 per cent. rhodium, the current produced being measured by a galvanometer. In preparing the test pieces I bored a tubing .310 of an inch in diameter, and turned a plunger for same, making it .180 of an inch shorter than the tubing. The body was mixed



with distilled water to a stiff creamy consistency, packed in the tube with pressure, and the excess of moisture absorbed with blotting-paper. By this method I was assured of thorough packing and uniform size of all pieces—.310 of an inch in diameter and .180 of an inch thick. Each button was allowed to dry thoroughly before placing in furnace. I herewith give you the results, as follows :

	Degrees, F.
Allen's porcelain body .....	2340
Close's porcelain body.....	2288
White's inlay porcelain body.....	2254
Brewster's foundation body.....	2218
Consolidated continuous-gum body.....	2200
Consolidated inlay body .....	2138
Whitely's body .....	2138
Brewster's enamel body .....	2084
Ash high-fusing body.....	2012
Jenkin's body.....	1580

I will leave you to judge of the correctness of these temperatures, but I am satisfied in my own mind that they are absolutely correct, for the most minute attention was given to every little detail. Experiments will show that correct fusing of porcelain, if you wish to reach the highest point of strength, is absolutely necessary ; and I may add that much of your success in this line of work depends on your knowledge of the same. Temperatures can also be judged by color ; a body can be approximately ascertained by an experienced eye. The following table, constructed by Kent, give the colors and their corresponding temperatures :

	Degrees, F.
Red in the dark .....	752
Red in twilight.....	884
Red visible by day .....	1077
Dull red heat .....	1292
Dull cherry red .....	1472
Cherry red heat .....	1652
Bright cherry red.....	1832
Dull orange heat.....	2021
Bright orange heat .....	2192
White heat .....	2372
Bright white heat.....	2552
Dazzling white heat.....	2732
Dazzling white-purple heat.....	2920

These results obtained, however, are rather unsatisfactory, as much depends on the susceptibility of the eye of the observer to light ; also the degree of illumination under which the observation is made. You will note by experimenting in daylight, twilight and darkness, that the colors vary several hundred degrees. By constantly noting these colors in your furnace, you can in time, at least, approximately detect the temperatures, and may at times save yourself trouble when by accident you neglect the furnace.

*Shrinkage.*—I will next submit a table of the percentage of shrinkage of the different porcelain bodies, to aid at least the beginner. This, I assure you, plays quite an important part in the

manipulation of the body. In applying the body—it matters not if it be for continuous gum, bridge, crown or inlay—you must make your calculations for a certain percentage of shrinkage, according to the body used. With extensive pieces of work I make separation complete at various points, particularly between the facings on teeth, that my work may not be warped or twisted out of line. With inlays it is necessary to divide the porcelain or carve it in such a manner that it will not shrink from the matrix or warp the same. Shrinkage always must be taken into consideration and allowances made to retain the matrix or framework in the same relative position you get it from the cavity or abutments. Porcelain always shrinks toward its greatest bulk, and the danger of contraction must be overcome by separation, making a cross or hole in centre of body, according to pieces of work in hand.

There are three stages of shrinkage in all porcelain : (1) The evaporation of moisture ; (2) the small particles of porcelain closing in as fusion commences ; (3) as it becomes vitrified. In preparing the buttons for the tests, all the details in manipulating the porcelain were scrupulously carried out to exactness. The measurements were taken with a micrometer calipers measuring .001 of an inch, and calculations made accordingly. To be positive as to the correctness, I baked three buttons of each body, took their measurement, and only found a variation of one-half of one per cent. in the best bodies. The appended table will show the percentage of shrinkage, as follows :

Names of Porcelain.	Percentage of Shrinkage.
Allen's body.....	22 ½
Close's body.....	21 ¾
White's inlay body.....	23 ½
Brewster's foundation body.....	23 ¾
Consolidated continuous gum.....	21 ½
Consolidated inlay body.....	31
Whitely's body.....	31
Brewster's enamel body.....	33
Ash's high-fusing body.....	34 ¾
Jenkins' body.....	38 ¼

You will note the above table presents quite a variation in shrinkage. In all the high-fusing bodies the percentage is much less than in the low-fusing. It is evident that the bodies having the shrinkage of 33 or more per cent. must be worked with the utmost care. The tendency also to globulate in shrinkage necessitates careful addition to previous baking.

*Crushing Strength.*—To satisfy myself and settle in my mind, at least, the great diversity of opinion concerning the relative strength of the different kinds of porcelain on the market, I have made impartial and quite exhaustive tests of porcelain as to their relative strength. Each manufacturer makes special claims for the porcelain which he places on the market, and it is no easy matter for the beginner to select. Many even that are considered experienced are led to think as the manufacturer tells them, and work and pass their judgment accordingly. It is of the most vital importance to have the greatest amount of strength that porcelain



can possess to reach the limit of success in crowns, bridge-work or continuous-gum work, and likewise in all contours of inlay work. In making these tests I used all precaution in manipulation, and I assure you I give the results which I obtained in all fairness, and have satisfied myself beyond a doubt concerning their relative strength and worth.

The moulds were prepared, measuring .428 of an inch in diameter and .263 of an inch in depth, making a button after baking about the size of a medium-size molar. The same method of manipulating the different porcelain bodies as stated before is employed, using the Seger cones to ascertain the fusion. I will give you only the greatest strength we obtained. To be positive and not to be misled, I baked from four to six buttons of each porcelain body and labelled same. I also under-baked and over-baked, as I will show you later, to emphasize the importance of true fusion. These tests were made by the St. Louis Testing Company and the Washington University Testing Laboratory on a Reihl testing machine. The porcelain buttons tested for crushing strength, and the results obtained, are stated in the following table.

Name of Porcelain.	Breaking Load, in pounds.	Crushing Strength, lbs. per sq. inch.
Allen's body .....	3,450	26,950
Close's body .....	5,650	45,640
White's inlay body .....	3,800	32,205
Brewster's foundation body .....	2,540	20,320
Consolidated continuous gum.....	3,860	30,390
Whitely's body .....	2,110	16,000
Brewster's enamel body .....	2,690	22,990
Ash's high-fusing body .....	2,660	22,810
Jenkins' body.....	3,330	28,305
Consolidated inlay .....	2,100	15,080

It was noticeable that the buttons which required a larger load for their crushing-point to be reached broke into finer powder than those requiring the lighter loads. All of the buttons which crushed at greater than 2,700 pounds chipped more or less when a load approximately of 2,000 pounds was reached. As the different buttons varied considerably on account of shrinkage, the last column in the table, headed "crushing strength, in pounds, per square inch," gives the truer comparison between the strength of the various buttons. In the above table the figures given are the best results I obtained with each of the named bodies, and I attribute the high crushing strength to the fusion of the porcelain. By repeating my experiments I found that Close's and White's inlay bodies were more uniform in crushing when fused at their normal fusion than any of the other bodies; they only varied some ninety pounds in crushing. The same bodies, Close's and White's, when under-baked (36° Fahrenheit) gave way at from 300 to 500 pounds less weight, while over-fusing (72° F.) gave way at from 1,600 to 2,300 pounds less weight than that at the proper fusion point. The Jenkins' body stood its highest test at 1,580° F. (3,330 pounds); at the temperature of 1,544° F., 2,910 pounds, and crushed at 1,090 pounds at 1,616° F.

It is evident in my mind that many failures in porcelain work can be attributed to improper baking, and particularly to over-baking. If your framework is properly constructed on mechanical principles and you get the correct fusion, I assure you that porcelain has the strength to stand more than ordinary mastication.

I will say, in passing, that from clinical experience I prefer Close's body for continuous-gum and foundation for large pieces of work, and the White's inlay body for all general work, on account of their great strength, less percentage of shrinkage, perfect density, retaining their color, and that they maintain the sharp outlines as carved; all of which is very essential in porcelain work, for absolute exactness in every detail must be carried out to be successful. The least failure in any part of the process will end with an imperfect piece of work.

Experience has fully demonstrated to me that only high-fusing bodies are suitable for continuous-gum, crown and bridge-work: and I assure you it possesses all the requirements for inlay work, on account of less shrinkage, retaining its line as carved, and the color, after it is fired.

To meet all requirements, porcelain should possess the greatest possible strength and the smallest amount of shrinkage. It must have that quality of retaining finely carved outlines under great heat. The fusion point should be sufficiently high so the attachments to high-grade porcelain teeth become permanently secured.

In closing I wish to say it is the most beautiful work the profession has been called upon to perform. In the hands of an artist nature can be imitated, but in the hands of a bungler it is a total failure. It demands the most exacting character of work and skill.—*The Dental Era*.

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### SHEARJASHUB SPOONER, M.D.,

Man of Letters, Art Collector, and the first to publish to the Profession the Use  
of Arsenic for Devitalizing the Dental Pulp.

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BY BURTON LEE THORPE, D.D.S., ST. LOUIS, MO.

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The progenitor of Dr. Shearjashub Spooner, William Spooner came to Plymouth Colony about 1637, with his mother and sister, from either Holland or England. Further than that he was a "redemptioner" (a term applied to emigrants brought over without prepayment of passage and who on their arrival were sold by auction for the shortest term of years for which any one would take them and pay the passage money), but little is now known of his early life. He died in 1684, leaving nine children. His second son, Samuel, was the great-great-grandfather of the subject of our sketch. Samuel's third son, Daniel, was his great-grandfather; Daniel's second son, Shearjashub, his grandfather, and Shearjas-



hub's second son, Paul, was his father. While these men were not noted for their wealth, they one and all were men of probity, and worthily served the community of their day and generation.

Dr. Shearjashub Spooner was the sixth son, and eighth child of Paul and Deborah (White) Spooner. He was born December 3rd, 1809, in Orwell, Addison Co., Vermont. His father was by trade a house carpenter and joiner.

Young Spooner grew to manhood, and was educated in the village of Brandon, Rutland County. He attended an academy and graduated at Middleburg, in 1830. When he reached the age of eighteen, by invitation of his brother, Dr. John Roach Spooner, a talented dentist of Montreal, Canada, he went to that city and commenced the study of the classics and medicine under his brother's instructions. He was a diligent student and soon became a proficient scholar. From the general study of medicine he turned his attention to dentistry, and in 1833, having mastered the important branches of medical knowledge, he went to New York City. Desiring to further qualify himself for his chosen profession, he entered the College of Physicians and Surgeons of the University of the State of New York, taking the full course, and graduated with the degree of M.D., April 6th, 1835.

Immediately after graduation he commenced the practice of dentistry, soon acquiring a large and lucrative practice, and becoming one of the best known dental practitioners of his time. He chose as the subject of his inaugural thesis for graduation "The Physiology and Diseases of the Teeth," which he subsequently published in an octavo pamphlet of 32 pages. In this work we find evidence that his views upon this important subject were more in accord with those of the present than were those generally held by the profession of his day.

His second contribution to dental literature was a little 12mo volume of 208 pages, entitled, "Guide to Sound Teeth, or a Popular Treatise on the Teeth," published at New York, 1836, and a second edition in 1838. This work is divided into three parts: The first treats of the anatomy and physiology of the teeth; the second is a republication of his inaugural thesis, and the third upon diseases of the teeth. The last part is of historic interest, as in it for the first time the use of arsenic for pulp devitalization as a step toward tooth preservation is recommended. The use of arsenic for relieving pain in the teeth was well known to the ancient Arabian medical writers of more than a thousand years ago, and is mentioned by them under the name of "sandarach," a word in the Eastern language equivalent to realgar, the red sulphide of arsenic. It seems strange that with this suggestion so often repeated by these ancient writers, dental practitioners should have so long overlooked arsenic in their search for some agent to destroy this troublesome organ. But so it was. On page 115 of the first edition of this work he says: "The nerves of the teeth may be certainly and effectually destroyed, with little or no pain to the patient, and without the least danger, by means of a little arsenious acid (arsenic, ratsbane) applied to the nerve. We claim for our brother, Dr. J. R. Spooner, of Montreal, the credit of this

invaluable discovery, and for ourselves no small share of credit for thus frankly laying it before the dental profession and the public." He claims that they had used it a long time, and that it had been the means of restoring to usefulness many teeth that would without it have been extracted. In this connection he also recommends the use of sheet lead for capping exposed pulps, and credits Dr. Torrey, Professor of Chemistry in the College of Physicians and Surgeons of New York, with recommending a little asbestos to be put into the cavity of a tender tooth, previously to plugging. "As it is very soft and insoluble in water, he thinks it may prove of great advantage."

He closes his remarks upon pulp treatment with the following paragraph: "If the nerve of a tooth be much exposed, we think it much the better practice to destroy it at once by means of the arsenic, and then to plug the tooth securely. All other methods of treatment are often abortive, and, if successful, the nerve often dies away gradually." He also was the author of "The Care and Preservation of the Teeth," which shows his familiarity with the underlying principles of dental science.

Both he and his brother, Dr. John Roach Spooner, were much interested in the possibilities of porcelain as a substitute for the perishable material used in constructing artificial dentures. Dr. Spooner entered into correspondence with others who were experimenting with it, suggesting that an interchange of experience and comparison of formula, etc., would prove of mutual advantage. He was, however, a little too early with such sentiments. While all were ready to receive, all were not ready to give. He did his part by publishing, in 1838, "An Essay on the Art and Manufacture of Mineral, Porcelain, or Incorruptible Teeth." In this little work he gave all the information he had been able to gather by his experiments and research upon porcelain working. While he was not a pioneer in adapting porcelain to the needs of prosthetic dentistry, for it had passed the experimental stage when he took it up, his little work proved very helpful to his brother practitioners and his example of so freely giving to the profession the results of his own labors had much to do with introducing into the profession a more liberal spirit. He also published, in 1838, "A Treatise on Surgical and Mechanical Dentistry."

He was a member of the Montreal Medical Society and became a member of the American Society of Dental Surgeons at its organization, and served upon its first Publication Committee. Shortly after this event he became very much engrossed in art work, in consequence of which he gave to professional matters less attention.

The work in which he was best known is his restoration of the engravings of "Boydell's Illustrations of Shakespeare." This employed much of his time for years and was a great undertaking, requiring a vast outlay of energy and money. The idea of the Boydell Illustrations was conceived by Mr. J. Boydell, a wealthy and influential alderman of the City of London. In 1785 he made a proposition to build a national historical art gallery and fill it with paintings by the foremost painters of Great Britain. The



ustrations of Shakespeare was his great scheme in which he concentrated his efforts. Numerous designs were made, and of these 134 were accepted. They were painted in oil by thirty-six of the most eminent British painters and were placed permanently in a splendid gallery built especially at his expense and known as "Boydell's Shakespearian Gallery."

The next step was to engrave the designs. This was done by thirty-two prominent British engravers and two sculptors. The engravings were on copper, the size of the plates being 24 by 30 inches. Their completion required from four to five years, so careful and elaborate was the work of the engravers. The whole undertaking was completed in 1803. To supply the multitude of English and foreign collectors with copies of these fine engravings, numerous impressions were taken from the plates, which in the course of time became worn. They were finally sent to the United States and offered for sale. Dr. Spooner became the purchaser. He at once set at work to restore them. He secured the services of Mr. Geo. Parker, who had been the pupil of Robert Thew, one of Mr. Boydell's engravers, and one of the most famous engravers of his day. Under Mr. Parker's supervision, assisted by numerous skilful artists, the plates were completely restored. The entire work was printed in folio and was subscribed for largely by the librarians of our country, and by prominent men. It was known as the "American Edition of Boydell's Illustrations of Shakespeare," containing one hundred original plates and letter-press descriptions of the plates. The latter was written by Dr. Spooner.

Besides this important work, Dr. Spooner published two other works of great interest and value. The first was "Biographical and Critical Dictionary of Painters, Engravers, Sculptors, and Architects," a volume of 1,200 pages, 1853-1865. This was one of the most satisfactory works of the kind ever printed, bearing the marks of great labor and knowledge of the subject. It contained cuts of various ciphers and monograms used by artists to distinguish their works, and gives historical sketches of the various branches taught in different schools of art.

His second important literary work was "Anecdotes of Painters, Engravers, Sculptors, Architects, and Curiosities of Art," third volume, 1853, a work of 1,000 pages. He completed a much more extensive work on this subject, but was prevented by death from carrying out his intention. He also published an edition of the "New Testament," superbly embellished and illustrated by engravings, after designs by the best Italian artists. He also completed and published several minor works from his own pen.

Dr. Spooner was a most assiduous worker. For six years, during which time he practised his profession, restored "Boydell's Illustrations" and wrote two books, he never once remitted his labor for pleasure or recreation.

A few years prior to his death, he projected an undertaking even more arduous than the restoration of the Shakespeare engravings. He purchased the worn plates of the two great French Art Museums, "The Musée Francaise," imported them and pro-

posed to restore them. But the customs duties were so heavy that he could not afford to take possession of them, and after considerable negotiations and vainly seeking relief from the Secretary of the Treasury, he finally abandoned the enterprise.

Dr. Spooner continued his unwearied activity until his death. For some time before this event he was a physical wreck. He died March 14th, 1859, after a lingering illness of chronic nervous trouble, and was buried at Plainsfield, New Jersey. He was married November 26th, 1836, to Mrs. Jane E. Darrow, widow of Allen Darrow, and daughter of John and Elizabeth Foot. They left no children. Dr. Whipple Spooner, who practised with Dr. John Roach Spooner at Montreal, was a brother of John Roach and Shearjashub.

His character was singularly amiable. Though impulsive in every good cause, he was immovable in purpose and resolution. It is interesting to note that he, like many others of the early men of dentistry, was possessed of much culture and artistic talent.

The facts contained in this sketch were obtained from—

"The Memorial of William Spooner, 1637, and of his Descendants to the third generation of his Great-Grandson, Elnathan Spooner, and his Descendants," to 1871, by Thomas Spooner. Private edition. Cincinnati, 1871.

"The Records of William Spooner, of Plymouth Mass., and his Descendants." Vol. I. By Thomas Spooner, Cincinnati, 1883. Page 133.

Appleton's Cyclopedia of American Biography. Vol. X., p. 635, and Mr. Fred. C. Spooner, Brandon, Vt., nephew of the subject of this sketch.

—*Dental Review.*

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## VARNISH LININGS.

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BY DR. HUNGERFORD.

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I deem that the insulation of sensitive dentine is one of the greatest means of giving comfort to our patients within our reach. We also know, in very large cavities—not those especially approaching the pulp, for that is not under consideration, and there we have opportunities for other methods, if you please; but in the cervical borders of the cuspids, upon the lingual faces of teeth, sometimes you encounter a cavity which, being so extremely shallow, it is impossible to use a cement therein; you will find that character of cavity is rendered extremely comfortable after insertion of filling if it has been lined with one of the resinous varnishes.

I remember very well I used to line my cavities universally with cements, long years in the past, and I found a majority of the pulps died; that was one reason which brought me later on to recommend strongly to the profession the destruction of the pulp in all teeth where there was an approximation of the pulp; to-day I do not do it so much.



I find that those very sensitive cavities in which the pulp is far removed are often painful for weeks, and sometimes months, unless some extraneous means other than the filling itself is taken to prevent thermal changes, electrical action and irritation from perhaps other causes. I know of no agent in these shallow cavities, that is as strong and permanent an insulator as resinous varnish.

It is the insulation used on all electrical wiring ; it is the best and most mechanical ; takes up a less space than any other agent that we can employ for that purpose.—*Western Dental Journal*.

## CASE FOR HOLDING REPLANTED TEETH FIRMLY IN PLACE.

BY J. K. DOUGLAS, D.D.S., SANDUSKY, OHIO.

The illustrations show a convenient method for constructing an appliance for retaining teeth, which have been removed by accident, or retain them in cases of orthodontia. The case referred to here is a young lady about sixteen years of age, who fell down stairs, knocking the central incisor completely out of the socket. After treating the tooth and socket with antiseptics, and having removed the nerve and filled the canals in the usual way, I constructed the above appliance.



FIG. 1.



FIG. 2.

FIG. 3.

First, make bands for right central and left lateral in same manner as one would in a retaining appliance in a case where the teeth have been regulated (as Fig. 1, A.-A.). I then connect these bands with a bar heavy enough not to spring (as Fig. 1, B). Then take a piece of iridio-platinum wire about 20-gauge, and by bending, construct a stirrup, that will catch over the cutting edge and extend up the labial surface to the bar (as Fig. 3). With the bands and bar in proper place, ascertain the length the stirrup should be and solder to bar (as Fig. 1, B). After the tooth is placed in the socket, fill the band with soft cement, place the appliance in position, and force to place, catching the stirrup over the cutting edge of the replanted tooth, carrying it to its normal position (as Fig. 2), and hold firmly until cement sets hard enough to hold it.

The same appliance may be used where there are more than one tooth to be held in position. The advantage of this appliance is that it holds the teeth firmly in place, is not uncomfortable for the patient to wear, is cleanly and may be left any length of time one desires.—*Dental Summary*.

[Anyone who has attempted to retain an implanted tooth, or retain a very loose one by applying a band to it, will appreciate the advantage of this appliance. The tissues about the tooth are so sensitive that a band cannot be pressed up to place when filled with cement. With this design the adjacent teeth are banded, and there is no difficulty from pain.—EDITOR.]

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## NATIONAL PHYSICAL DETERIORATION.

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On Saturday, September 5th, it was officially announced that the Lord President of the Council had appointed a committee to make a preliminary inquiry into the alleged physical deterioration of certain classes of the community. The committee consists of the following seven gentlemen who are all well known as experts in their several departments :—Mr. Almeric Fitzroy, C.V.O., Clerk to the Privy Council ; Colonel G. M. Fox, C.B., formerly head of the Army Gymnastic School ; Mr. J. G. Legge, Chief Inspector of Reformatory and Industrial Schools ; Mr. H. M. Lindsell, Principal Assistant Secretary to the Board of Education ; Colonel George T. Onslow, C.B., Inspector of Marine Recruiting ; Mr. John Struthers, C.B., Assistant Secretary to the Scotch Education Department ; and Dr. J. F. W. Tatham, of General Register Office, Somerset House. We are informed that the Government has decided to appoint this committee in fulfilment of a promise by the Duke of Devonshire last July in the course of a debate in the House of Lords, which promise was to the effect that the inquiry asked for at the time should be made if necessary, and that as a preliminary step the opinion of the medical profession should be taken as to the necessity for such an inquiry and as to its scope. Accordingly the opinion of the Royal College of Physicians of London and of the Royal College of Surgeons of England was asked for and obtained. The replies of the College must be regarded as confidential, but it is clear from the appointment of the commission that both corporations considered that an expert inquiry into a most important subject might well be made.

The question of the alleged physical deterioration of the masses has been for some time before the public. It was much brought into prominence by an article in the January number of the *Contemporary Review* entitled "National Health: a Soldier's Study," from the pen of Sir Frederick Maurice. In our editorial remarks in *The Lancet* of January 31st, we reviewed at considerable length the article referred to and on several occasions since then we have reverted to the subject. The acute stage of controversy was not, however, reached until Sir William Taylor, the Director-General of



the Army Medical Department, published his memorable report on the physical degeneration of the recruits presenting themselves for admission into the army. Since the issue of that report as a parliamentary paper the daily press has been flooded with vague statements as to the deterioration of the physique of the laboring classes, while the usual crop of more or less silly and impracticable suggestions for dealing with the evil, the actual existence of which is, of course, accepted without question, has followed. In our remarks from time to time concerning this important question we have been careful to make it clear that, whilst we raise no objection to the appointment of the commission asked for by Sir William Taylor (although we fail to see what practical results are likely to be attained), we cannot accept the evidence which has been hitherto advanced as *proving* any general deterioration in the national physique. It remains to be seen what course the committee now appointed will think it best to pursue. It will presumably be afforded the fullest facilities for investigating and probing to the bottom the whole system of recruiting for the army, and, if we mistake not, this is a part of the War Office machinery which will be found to be in need of amendment. The inquiry cannot be otherwise than a prolonged and intricate one, as it will certainly prove a most important one. For ourselves we are content to await the result of the deliberations of the committee with patience and with confidence. We hope that the public will be persuaded to adopt a similar attitude, and will not take it for granted, upon ignorant or irresponsible statements, that the vitality of their countrymen is hopelessly lowered.—*Lancet*.

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## TIN AND GOLD.

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BY DR. A. J. PROSSER.

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To protect the teeth from thermal changes that take place in the mouth, the best lining and the best non-conductor for hypersensitive dentine is tin and chloro-percha—in my hands, tin and gold. In a tooth which is extremely hypersensitive, if you will prepare the cavity carefully, keep it absolutely dry, and take a film of chloro-percha and flow over that—I say a film, because we do not want too much in there for expansion under the filling—after that has been done, if you will then flow a little cement over that and wait until that has hardened, trim down your body and place in your fillings—any kind that you choose to use—I will promise you that you will get comfort out of it. The same thing in tin and gold; there is nothing in dentistry to-day that will make a tooth more comfortable than tin and gold. You can take a hypersensitive tooth, that is responsive to thermal changes, and fill it with tin and gold, and your patient will soon tell you what comfort he has from its use.—*Western Dental Journal*.

## ARSENIOUS ACID—A PHARMACO-THERAPEUTIC STUDY.

BY HERMANN PRINZ, M.D., D.D.S., ST. LOUIS, MO.

Professor of Materia Medica and Therapeutics in the Dental Department of Washington University,  
St. Louis, Mo.

*Arsenious Acid.*—Acidum arseniosum.  $\text{As}_2\text{O}_3$ .

*Etymology.*—From the Greek: Arsenikon, which, however, designated what is known at present as orpiment or King's yellow—native arsenic trisulphid.<sup>1</sup>

*Synonyms.*—Arsenic trioxid, arsenious anhydrite, arsenicum album. Acide arsenieux (French), Arsenige Saure (German), Arsenico blanco (Spanish).

*Source and Character.*—Arsenious trioxid is not a true acid (absence of hydrogen). It is obtained by roasting arsenical ores. In Bohemia and Saxony it is largely produced from smelting crude cobalt ores, and in England from arsenopyrite, known as *mispickel* or arsenical iron. It appears in transparent porcelain-like masses which slowly change to an opaque, milk-white color, or in the form of a fine, white powder. It has no taste or odor and is entirely volatilized by heat.<sup>2</sup> When thrown on ignited charcoal it emits a garlic-like (alliaceous) odor. It is slowly soluble in from 30 to 80 parts of cold water, depending upon the variety employed. It is completely soluble in 15 parts of boiling water and in 5 parts of glycerine; it is sparkingly soluble in alcohol. It is incompatible with the salts of iron and magnesium, with lime water and astringent vegetable drugs. The dose is 1-60 to 1-12 grain in pill form or solution after meals.

*Preparations:*—Liquor acidi arseniosi (U. S. P.), Liquor arsenici hydrochloricus (Br. P.), a one per cent. solution of arsenious acid acidulated with hydrochloric acid.

Liquor potassii arsenitis (U. S. P.); Liquor arsenicalis (Br. P.), Fowler's solution, a one per cent. solution of arsenious acid neutralized with bicarbonate of potash and colored and flavored with compound tincture of lavender. Dose: 3 to 5 drops three times daily after meals.

Liquor arseni et hydrargyri iodidi (U. S. P., Br. P.), Donovan's solution, containing one per cent. each of arsenic iodid and res-mercuric iodid. Dose: 5 to 20 drops after meals.

*Medical Properties.*—Caustic, antiseptic and tonic.

*Local and General Action.*—If arsenious acid is applied to the unbroken skin, no change is produced, unless allowed to remain in contact for some time. Upon denuded surfaces or mucous membrane it acts as a slow but very persistent caustic, forming, however, no compound with the albuminous or proteid materials



of the cells. Its action therefore, is not self-limiting as that of the true metal salts. It seems to act only upon living tissue. Taken internally, arsenious acid acts as an irritant. It does not combine with the albuminous contents of the stomach or intestines, but remains unchanged. Thus it stimulates the nerves and vessels and causes a sense of hunger by increasing the gastric functions. It is readily absorbed and quickly enters the blood.<sup>3</sup>

In overdoses arsenious acid is extremely poisonous. It manifests itself in a feeling of constriction in the throat, of difficulty in swallowing, and violent pain. "Rice-water" stools or bloody diarrhea follow, the urine is diminished; cold, damp skin; giddiness, feeble pulse and respiration soon ending in collapse. Chronic poisoning usually follows the prolonged absorption of small quantities either from therapeutic use or from typical cases due to the presence of arsenic in the form of dyes in wall paper, clothes or in mines and manufactories.

If arsenic is taken habitually in small quantities, a tolerance to the drug may be established, as with the arsenic eaters of Styria and the Tyrol. It is claimed that it will improve the complexion and general appearance. As much as seven grains have been taken without ill effect at a single dose by a person accustomed to its use.

*Specific Action of Arsenious Acid upon the Tooth Pulp.*—In 1833, Wood advocated the use of fly-stone (crude cobalt) for the destruction of the dental pulp. Three years later, in 1836, Dr. Shearjashub Spooner, of New York, published an excellent little work, entitled, "Guide to Sound Teeth; or, A Popular Treatise upon the Teeth," in which he recommended to the dental profession at large, for the first time, the use of arsenious acid for the above purpose: "The nerves of the teeth may be certainly and effectually destroyed with little or no pain to the patient, and without the least danger, by means of a little arsenious acid applied to the nerves." Spooner claims to have learned this special application of the acid from his brother, Dr. John Spooner, of Montreal, Canada. According to Geist-Jacobi, Harris, of Baltimore, used arsenic in 1835 without having knowledge of Spooner's discovery. However, arsenic was utilized by dentists for other purposes as early as the beginning of the Christian era, as recorded by Cornelius Celsus in his work, "De re Medica." The celebrated Arabian physician Abulkasem, living about 1000, in Cordova, Spain, describes in his remarkable work, "The Altrasrif," the use of "sandarac" for producing artificial ulcers about the roots of teeth to facilitate their ready removal. The Arabian term "sandarac" is synonymous with red disulphide or arsenic, also known as realgar or red orpiment. Simultaneously, the above term sandarac is applied to a well-known resinous substance.

Dunning, Foster, Maynard and Westcott are among the first who strongly advocated the advantage of arsenious acid over the extirpation of the living pulps by means of instruments or by the actual cautery or over the "Hullihen operation" known as rhizodontropy (1851). This latter operation consisted in "making a hole through the gum, the outer edge of the alveolar process, and

the root of the tooth into the nerve cavity, and then in opening the blood-vessels of the nerves."

Since the introduction of arsenious acid for the purpose of destroying the dental pulps, many substitutes have been advocated, but none have, so far, superseded it or taken its place. Crude arsenic, known as cobalt,\* fly-stone, or by many other synonyms has been much lauded by various practitioners (Arthur, Allport Taft, Herbst, Dorn, etc.). It contains a very uncertain amount of arsenious oxid, and has no superiority over the pure chemical; therefore it should be dispensed with for such work.

In 1886, Adolf Witzel,<sup>7</sup> published his memorable work, "A Compendium of the Pathology and Therapeutics of the Diseases of the Pulps of the Teeth," in which he tried to explain the action of arsenious acid as follows: "Arsenic acts upon the diseased part of the pulp only, causing an increased influx of blood into the healthy part. A deeper penetration of the drug through the entire pulp and through the foramen is excluded; no chemical disintegration of the dentine takes place, a view which Baume at one time strongly opposed. Arsenic manifests a specific action upon the nerve-endings causing their disintegration." Miller<sup>8</sup> studied the action of arsenious acid upon pulps of teeth in dogs and rabbits and upon the tails of white mice; the latter, according to his views, bear a close resemblance to a tooth pulp. In some cases he placed a small glass ring over the tail fastening it securely over its root thus resembling somewhat the constricted apical foramen of the tooth. In other cases he encased the entire tail in a batter of plaster-of-Paris after previously applying a small amount of arsenic into a pouch of the skin. The most pronounced symptom in all cases manifested itself in an intense edematous swelling. The entire back and the hind limbs were involved, accompanied by pronounced anesthesia of the parts and paralysis of the legs. Death usually results in 24 to 36 hours, depending upon the quantity of arsenic used.

Arkovy<sup>9</sup> presented a thorough investigation of the action of arsenic before the International Medical Congress in London in 1881. A short résumé of his work will be of the highest interest. According to the amount of arsenious acid used, a partial or total hyperemia of the pulp will be the result. The blood vessels will enlarge and show signs of thrombosis, and embolism of the

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\* Cobalt, chemically, is a metal of steel-grey color; hard, ductile, and of a high melting point, resembling in its general characteristics, iron. It is rarely used in medicine. Unless specified, this metal cobalt is not sold in the shops; a number of its compounds, consisting largely of cobalt in conjunction with arsenic, nickel, iron, manganese, etc., are found in nature and are commonly called crude cobalt, cobalt-ore, or simply cobalt. Metallurgists distinguish quite a number of cobalt varieties according to their composition, *e.g.*, smaltine, tin-white or speiss-cobalt; crude metallic arsenic, fly-stone or Scherbencobalt, etc., composed of about seventy per cent. of arsenious acid with cobalt, nickel, sulphur, etc. (it is a heavy black powder and usually sold in the shops by the name of "cobalt"), cobalt-bloom, erythrine or native cobaltic arseniate with about thirty-eight per cent. arsenious acid (a deep-blue powder); cobalt glance with about forty-five per cent. arsenious acid; earthy cobalt or wad with no arsenious acid, etc.



capillaries may result. The red blood corpuscles lose their color, most likely as a result of the chemic combinations of the arsenic with the hemoglobin, causing anemic collapse and shrinkage. The connective tissue fibres and the odontoblasts are not changed, while the connective tissue cells are greatly enlarged. The axis cylinders of the nerve cells usually disappear, the nerve cells themselves show a granular debris of the myelin. If kept in place for some time the arsenious acid will penetrate through the entire pulp. Other investigators followed the writings of Herz-Frankl and Schenk,<sup>10</sup> Julius Witzel,<sup>11</sup> Morgenstern,<sup>12</sup> Greve<sup>13</sup> and the classic researches of Gubler<sup>14</sup> upon the therapeutic action of this important drug are highly interesting. Binz and Schultz<sup>15</sup> explain the pharmacodynamic action of arsenious acid as follows: Living protoplasm possesses the power of constantly interchanging the atoms of oxygen which adhere to arsenic trioxid, viz., to convert the arsenious acid— $\text{As}_2\text{O}_3$  in arsenic acid— $\text{As}_2\text{O}_4$  and *vice versa*. This perpetual oxidation and reduction within the molecules of albumen causes a violent to-and-fro vibration of the atoms of oxygen and this is the cause of its therapeutic and toxic effect. The metalloid arsenic acts merely as a carrying medium of the active atoms of oxygen. According to Filehne,<sup>16</sup> all members of the arsenic-phosphorus-antimony group share the same property. As arsenious acid is not a coagulant of albumen or only very slightly so, its action is practically unlimited unless its molecules are broken up. Besides, the drug is readily absorbed and very diffusible. These factors are responsible for its deep action. If pulps, subjected to the influence of  $\text{As}_2\text{O}_3$  are treated by the Marsh test, no arsenic can be found. Evidently some unknown chemic compounds are formed during its action upon living tissue.

Strangulation of the pulp about the apical foramen as the result of the arsenical action is not the direct cause of its death; in teeth with undeveloped roots and in deciduous teeth this process is very doubtful. Stasis, viz., the prolonged interruption of arterial circulation, as induced by this chemic poison, is the first step of the surrender of the organ; it is followed by granular dissolution of the blood corpuscles and inhibition of the nervous function."

*Therapeutics.*—In spite of the many substitutes offered, arsenious acid is still the most universal agent used for the destruction of the dental pulp. Usually, it is applied in the form of a paste. Additions of anesthetic drugs to the pure acid, such as morphine, cocaine, iodoform, menthol, thymol, carbolic acid, creosote, the essential oils, etc., have been recommended to obviate the pain arising from its application. With the possible exception of cocaine, the anesthetic value of the other enumerated drugs is very doubtful—especially is this true in regard to morphine, which has practically no effect upon sensory nerve endings. As a vehicle, a very weak solution of sodium chloride in glycerine facilitates ready absorption of the acid. Some practitioners recommend lanolin (a natural wool-fat) for the same purpose. Hollader has suggested the addition of a small amount of charcoal as a coloring agent. Admixtures which are not readily soluble in the fluids of pulp

tissue interfere with the quick action of the drug, some acting as foreign bodies and others being directly harmful by forming a superficial scab. Antiseptics are usually of no value in this connection; arsenious acid has sufficient germicidal power in itself, although it is a peculiar fact that bacteria possess a certain unknown immunity toward the acid. The pain resulting from the application of the acid upon the pulp is not so much due to the chemical itself as it is the result of its faulty application in all possible stages of inflammation. Discrimination between the various stages of pulpitis, after a careful diagnosis, is essential to successful treatment. The pulp should be exposed as much as possible to give ready access to the arsenic and the same time allowed for the usual swelling as a result of the action of the drug. If, for some reason, the pulp cannot be readily exposed, the arsenic should be placed within close proximity of the organ, it will act, although slower, through thin layers of dentine. Prior to the application of the arsenic, the cavity should be excavated as much as possible and the pulp should be thoroughly depleted either by puncturing the organ or by producing artificial anemia. Szabo<sup>18</sup> recommends for this purpose lavage, viz., the application of lukewarm water changed successively to cold water. Quicker results are produced by applying adrenalin chlorid solution under pressure. The cavity must be free from blood to prevent the formation of inactive arsenic-hemoglobin. If the pulp is inflamed and painful it is absolutely necessary to apply suitable remedies to relieve this condition before the acid is applied, otherwise continuous severe pain is certain to arise. Some of the essential oils, specially eugenol in combination with carbolic acid, thymol, tannic acid, etc., are indicated. According to Jack,<sup>19</sup> a weak solution of formaldehyde is very effective. These remedies if sealed into the cavity usually alleviate the condition in from 24 to 48 hours. If pus is present, it should be drained off and washed away with some antiseptic solution. If peroxid of hydrogen is employed for this purpose, all traces must be removed, as it may oxidize the arsenious acid to the inert arsenic acid. The paste should now be placed in direct contact with the pulp by means of a blunt instrument or upon a depressed metal disk, a piece of cardboard, or upon cotton, and covered with a water-tight temporary filling of cement or the gutta-percha preparations. Personally, I prefer Fletcher's artificial dentine for this purpose. Extreme care should be exercised in this simple yet most important operation. Cotton fibres mixed with sandarac varnish as a retaining medium should be avoided, it is not water-tight and readily decomposes in the fluids of the mouth; besides, it swells, causing pain from pressure upon the pulp. To prevent leakage, Harlan prefers to cover the arsenical dressing with an intermediate film of vaseline upon cardboard. In applying the temporary sealing it is essential to avoid pressure upon the dressing. In approximal cavities where overhanging tooth substances prevent ready access and, therefore danger of misplacing the arsenical dressing, gutta-percha packed between the two teeth and acting as a splint is of some service.

The amount of arsenious acid necessary for the destruction of a



pulp is very small. About a sixtieth to a thirtieth of a grain, or even a smaller quantity is amply sufficient. It is not only useless but decidedly dangerous to employ more. Dr. L. L. Buckingham, according to Harlan, has stated that he could destroy from ten to fifteen pulps with the same little pellet and still find arsenic in every pulp (?).

In deciduous teeth, and in those of young persons, where the apical foramina are comparatively large, the arsenical paste should be diluted with an equal volume, or even more, of zinc oxid or some other bland material and left in the cavity a much shorter time. Martin<sup>20</sup> reports a case of a grown woman in which he applied arsenical paste upon the pulp of a lateral incisor; "the devitalizing agent passed out through the apical opening, as sloughing was most marked at apex, and the apical opening in the tooth was noticed to be abnormally large." Indeed, great care is to be exercised under all conditions with an agent so powerful as arsenic. Many practitioners are opposed to its use in the teeth of children. More than two teeth should not be subject to this treatment at one sitting to prevent the possible chance of accidental swallowing of a larger amount of the drug.

The time required for the destruction of a pulp with arsenic depends upon many circumstances. In the young, on account of the great vascularity of the organ, from twelve to twenty-four hours is usually sufficient. In people of mature age, it is best to leave the application *in situ* from four to five days. This allows ample time for the breaking down of the entire pulp and its ramifications. However, many pulps do not require more than two or three days to succumb to the effect of the drug. After the removal of the arsenic it is well to apply some astringent drug, such as tannic acid or formaldehyde for one or two days, which will generally facilitate the ready removal of the pulp *in toto*. Occasionally it will be found that in trying to remove the organ, the apical half is still very sensitive to the touch of the broach. If it becomes necessary to again apply arsenic into the root canal a very small quantity of the greatly diluted paste should be employed. In such cases some practitioners prefer to use the so-called "devitalizing fibre," which<sup>21</sup> is a dried mixture of coarse-cut cotton with arsenious acid, opium and other drugs.

A number of cases of severe toxic pericementitis, some even followed by necrosis of the alveolar process, and consequently loss of one or more teeth resulting from over-doses of the paste, are on record. Pulp-nodules occasionally obstruct the ready diffusibility of the drug. Removal of these calcarious deposits by means of a drill under cocaine pressure anesthesia is indicated. Cocaine should, however, never be applied cataphorically under these conditions, as the electric current will drive the previously applied arsenic through the apical foramen into the soft tissues. M. H. Fletcher<sup>22</sup> reports a case of this nature resulting in severe inflammation of the pericementum. Ritter<sup>23</sup> warns against the application of arsenic for the above purposes during pregnancy, claiming the teeth are less resistant and "softer." Occasionally one meets a patient who possesses an unexplained idiosyncrasy toward this drug.

*Toxicology.*—If arsenic is taken in an overdose (two grains have been known to kill a man), the proper antidotes should be promptly administered. Vomiting should be induced by the finger, the feather part of a quill or such an emetic. The official arsenic antidote—freshly prepared ferric hydrate with magnesia—given in tablespoonful doses every five or ten minutes, or dialysed iron followed by common salt are the best means of chemically neutralizing the poison.

Local toxic effects of arsenious acid in the mouth are most frequently met with as the result of faulty application of the drug for dental purposes. Leakage of the dressing seal is responsible in most cases. However, contact of the mucous membrane with instruments accidentally carrying small particles of the paste, or the unnoticed squeezing out of arsenic resulting from the pressure applied in placing the retaining stopping are usually the cause. The fact that arsenious acid is odorless and tasteless increases this danger, which is often only recognized after the mischief is done. *Peso*<sup>25</sup> relates a case in which arsenic applied to a lower left first molar caused destruction of the alveolar process and gum tissue ranging from the first bicuspid to the second molar. Close investigation revealed a minute perforation of the distal root. *Faught* reports a number of local arsenical intoxications resulting from the application of the rubber-dam which was not washed prior to its application. An examination developed the fact that the French chalk (soapstone), used for preserving the dam, contained sufficient calcium arsenite to produce the affection. *Power* describes a peculiar arsenical intoxication which resulted in the loss of the entire lower denture. The local poisoning was brought about by frequently cleansing the teeth with yarn which had been dyed with colors containing arsenic. In past and present literature many similar cases are cited. A word of warning may not be amiss: Extreme care should be exercised in handling this active poison to prevent not alone danger to the life of the patient, but also lawsuits for malpractice.

Arsenical intoxication of the gums presents in its early stages all the phenomena of true inflammation. Later, the surface becomes denuded, and it assumes a raw-ham color, the veins are distended, the border of the infected surface is raised with loss of substance in the depressed centre—a typical picture of an ulcer. Arsenic penetrates very deeply, destroying soft and hard tissues with almost equal rapidity. In the early stages the affection is not painful; However, as soon as the deeper structures are reached, severe pain is manifested.

The rational cure of this local affection consists in the thorough removal of every particle of arsenic. Forcible syringing of the affected parts with warm water, curetting of all gangrenous tissue until free hemorrhage is established with large spoon excavators or preferably a Volkmann spoon and removal of the necrosed bone with burs. After renewed washing the entire affected surface is painted with dialysed iron to chemically neutralize any possible remaining arsenic, and presently saturated with tincture of iodine. The pain is greatly relieved by applying a 20 per cent. orthoform



ointment or by dusting the denuded surfaces with a mixture of equal parts of orthoform and starch. If sequestration of the alveolar bone continues, the application of aromatic sulphuric acid or phenol-sulphuric acid will be of great assistance in detaching the dead bone. A bland antiseptic, to be used warm and at frequent intervals, is indicated as a mouth-wash.

*Formulary—*

R	Acid, arsenos.....	gr. xx.
	Cocaine, hydrochlor .....	gr. x.
	Sod. chlorid .....	gr. j.
	Glycerine.....	q.s. ut ft. pasta
R	Acid, arsenos.	
	Thymol .....	aa. gr. xx.
	Ol. caryophyl.....	q.s. ut ft. pasta
— <i>Miller.</i>		
R	Acid. arsenos.....	gr. xc.
	Coc. hydrochl.....	gr. xl.
	Acid. carbol. cryst.....	gr. x.
	Lanolin, q.s.....	ʒij.

—*Harlan.*

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—*Dental Summary.*

## Proceedings of Dental Societies

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### BOARD OF DENTAL STUDIES, TRINITY UNIVERSITY.

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The Board of Studies of Trinity University held a meeting in the Registrar's Room, on Thursday evening, November 19th, 1903.

Those present were Provost Macklem, Chairman; Dr. Jones, Registrar; Dr. Reade, Secretary, and Drs. A. E. Webster, G. S. Cæsar and W. T. Stuart.

The date of the spring examination for the degree of D.D.S., is April 25th, 1904.

The following examiners were recommended for appointment for the year 1904: Operative Dentistry, C. V. Snelgrove, D.D.S.; Prosthetic Dentistry, G. S. Cæsar, D.D.S.; Physiology and Histology, R. J. Reade, M.A., D.D.S.; Anatomy, W. T. Stuart, M.D., C.M.; Practical Dentistry, A. E. Webster, M.D., D.D.S.; Medicine and Surgery as applied to Dentistry, L. Teskey, M.D., C.M., M.R.C.S. Eng.; Oral and Dental Pathology and Bacteriology, C. V. Snelgrove, D.D.S.; Dental Therapeutics and Materia Medica, A. E. Webster, M.D., D.D.S.; Chemistry and Metallurgy, W. T. Stuart, M.D., C.M.; Dental Jurisprudence, J. B. Willmott, M.D.S., D.D.S.

According to the terms of Confederation of Trinity and Toronto Universities, all candidates who register by September 30th, 1904, will have six years from Oct. 1st, 1904, in which to complete their course under the regulations in force at the time of registration.

ROBERT J. READE,

*Secretary of Board of Dental Studies.*

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## Correspondence

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*To the Editor of DOMINION DENTAL JOURNAL:*

Dr. Gowan has sounded a battle-cry that shall yet be the death-knell of the apprenticeship system. The profession of dentistry, moving in giant strides, has become such that the apprenticeship system, once so useful, is incompatible with present conditions. The development of college education has rendered apprenticeship not only unnecessary but a menace to our progress.

Through the agency of the college the practice of dentistry has ceased to be based upon the methods and ideas of individuals, and has become systemized according to the various branches of science which enter into it.

The old haphazard methods, producing such unequal results have become obsolete, and in their stead there has been erected a system that gives a high average of service.

It has been noted, with few exceptions, that the least efficient practitioners take the greater number of students. The slipshod and unprofessional methods of these preceptors are engrafted on



the students and can never be completely eradicated by any college.

It will be found that most of our unprofessional members can be traced to the unhappy training, or rather the neglect, of inefficient preceptors. I do not mean to state that we can ever eliminate the unprofessional practitioner, because some men are born blind to the distinction of ethics, but we can remove the positive encouragement given by the old system by abolishing it. Not only is the apprenticeship system inimical to the profession at large, but it is unjust to both student and preceptor.

Dr. Gowan has placed the "Bondage Clause" in such a light that its injustice cannot be overlooked, while every preceptor knows too well the disabilities and inconveniences that lie at his end of the contract. Why should we adhere to a system so manifestly inadequate to attain the objects for which it was intended? It has been asked, "What shall we have in its place?" I am of the opinion that, even if nothing could be found to take its place, it were still better abolished.

Dr. Webster, for whose knowledge and judgment I have the greatest respect, suggests the adoption of a summer session. This, he claims, would remove the difficulty of having a large number of students free during the summer months, when the temptation is strong upon some, at least, to engage in illegal practice. This is certainly worthy of our careful consideration, and adds an element to the problem that cannot be overlooked.

With the increasingly higher standing of the men coming into the profession, I think that this difficulty will be minimized. It should be impressed upon prospective students that the status of dentistry is such that it calls for a gradually ascending scale of educational and social requirements, and that some sacrifice must be made in order to enter it.

Under the present system, a student is often able to earn enough during the summer to enable him to live. If the present system were abolished it might be so arranged that the services of students could be had during the summer.

By giving the college a certain supervision over the arrangement, the whereabouts and actions of such students could always be known to the college authorities.

While making this suggestion, I am conscious that it is contrary to my avowed principles to encourage the multiplication of rules and regulations, since they seem to indicate that we regard each student as a potential law-breaker.

I would rather regard the students as men of honor, and take steps to make it unpleasant for those who stray from the path of virtue as laid down by the Dental Act. It is the history of reform that it brings a train of new problems into view—that is what constitutes progress.

There is no doubt in the minds of many of the foremost men of the profession that the apprenticeship system has outlived its usefulness and should be abolished as quickly as possible.

MARK G. McELHINNEY.

Ottawa, 1903.

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The above is a correct list of the dental organizations of Canada, with Presidents and Secretaries, so far as they are known to the Journal. It is the intention to keep a list of the officers of all Canadian societies in the Journal, so where there are omissions or errors please notify the Editor, who will make the correction, and as far as possible keep a corrected list, which will be of great value to the organizations.



# Dominion Dental Journal

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93 COLLEGE STREET

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## AN IMPERIAL DEGREE IN DENTISTRY.

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In an editorial in the *British Dental Journal* under the above heading, appears the following paragraph, which is the only reference in the article to the title:

“Under these circumstances we look to the reconstituted University of London to maintain those high standards for which it has always been famous, and to grant only those degrees which, at least, as regards stringency of examination, shall be recognized throughout the Empire as the best of their kind. An Imperial degree in dentistry then, is only desirable if it takes rank as the highest distinction open to the student; it can only justify its existence by acting as a passport, for those who possess it, to the best public appointments now, and in the future to be, open to the dentist. I think this view must meet with general acquiescence, but unfortunately, although quite naturally, great differences of opinion exist as regards the definition of that dental curriculum which shall, while being of practical utility, approach the ideal in

character and scope. I say naturally, because, in spite of the narrowness of its application, dentistry by the many-sidedness of its scientific basis has close relations with a large number of exceedingly diverse branches of learning; and it must always be the case that different minds, according to their bent, will attach different estimates of value to the various studies auxiliary to dentistry."

Just what the writer of the article means by an Imperial degree is not very clear, but it's an attractive heading just now when Mr. Chamberlain is making such a strong plea for imperialism. Just why a degree granted by London University should be called an Imperial degree is not clear to a colonial, nor should it be clear to the University of Manchester, which has been granting degrees in dentistry for at least a year or two. The curriculum prescribed by the London University may be a very comprehensive one, but does it carry with it any special privileges which will make it an Imperial degree? If the degree carried with it a passport to the best public appointments open to the dentist and the right to practise in any part of the empire, then it might be called an Imperial degree. An imperialism that will make England and London the Empire is the kind of imperialism that is in the minds of most Englishmen, and especially Londoners. Such imperialism is not in the minds of the Empire. It would be a decided advantage to the profession in England if the University of London granted degrees in dentistry. It would be an acknowledgment of dentistry that would be far-reaching in its benefits. But while this may be all true, why should a degree from a university which has been so slow to acknowledge dentistry be given a position greater than that of those universities which have befriended the profession in the past? There are universities in the Empire which have been granting degrees in dentistry for fifteen years, though there is not a word about calling them Imperial degrees.

Really, an Imperial degree to have any right to the name, should permit its holder to practise dentistry in any part of the Empire without further examination; but no one university or body of men should have the power to prescribe the curriculum or prepare and hold the examinations. Every corporate dental body in the Empire should have a voice in the formation of the curriculum and examinations that they propose to accept in lieu of their own. It would be quite easy for the University of London, or any other body, to conduct examinations in whatever part of the Empire in which it might be found advisable to hold an examination. There



is no doubt whatever but that some kind of reciprocity in dental degrees is desirable. A dentist under our present narrow laws is compelled to live and die in the locality in which he receives his license or go through his whole course again. There has been a disposition in Canada for some years to enter into some kind of reciprocal relations with Great Britain, but every attempt at an arrangement has miscarried. From a Canadian standpoint there was never any desire to allow the holder of a British degree to practise in Canada without a further examination, because, as far as Ontario is concerned, the British candidate's qualifications are not up to the standard in many respects. Nor was there any wish on the British side to accept, without further examination, the holder of a Canadian license, though they may have agreed to do so. Understanding these conditions, an agreement was entered into a year or two ago by which a licentiate of Ontario could sit for his final examinations after attendance at a British dental hospital for one year, and likewise a British licentiate could sit for examination for a license in Ontario after attending the Royal College of Dental Surgeons of Ontario for one year. This agreement seemed quite satisfactory until it was put to a test by Dr. A. G. Fraser, a licentiate of Ontario, making application to the Edinburgh Dental Hospital and to the General Medical Council for registration, under the conditions agreed upon by the authorities having power to make such agreements. Although Dr. Fraser held all the necessary credentials according to the agreement, and spent over two months in Edinburgh in an attempt to register, he was refused. On what pretext no one seems to know, at least no one on this side of the Atlantic. Dr. Fraser's impression was that neither he nor any other colonial was wanted on such a mission in Great Britain. We could hardly be blamed if we said that the authorities of both the Edinburgh Dental Hospital and the General Medical Council were lacking in good faith, or, in other words, they signed an agreement which they did not keep. Such acts do not tend to make a colonial stand in admiration of British integrity. With our experience with the General Medical Council and the Edinburgh Dental Hospital, we cannot understand how a binding agreement could be made with the University of London with a view of accepting their degree in lieu of our license. At present all are doubted because one or two have broken faith.

However, notwithstanding the failure of the aforesaid bodies to live up to an agreement, every Canadian dentist looks forward to the time when it may be possible for anyone to obtain a degree which will be acknowledged in any part of the Empire. To

that end everything is tending. The formation of the Canadian Dental Association and a Dominion Dental Council are the first steps in Canada.

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### ARSENIC—ITS APPLICATION AND SEALING.

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Upon page 746, of this issue, appears the following instructions *re* sealing arsenic paste in teeth for the purpose of devitalization of the pulp: "The paste should now be placed in direct contact with the pulp by means of a blunt instrument, or upon a depressed metal dish, a piece of cardboard, or upon cotton, and covered with a water-tight temporary filling of cement, or the gutta-percha preparations. Cotton fibres, mixed with sandarac varnish as a retaining medium, should be avoided; it is not water-tight and readily decomposes in the fluids of the mouth; besides, it swells, causing pain from pressure upon the pulp. To prevent leakage, Harlan prefers to cover the arsenical dressing with an intermediate film of vaseline upon cardboard." Almost every statement made by the author in this quotation has been doubted at one time or another; in fact, they have been shown to be not well founded. Smith, of Philadelphia, says, if pain is to be avoided in devitalizing a pulp, the arsenic should not be applied directly to the pulp, but should be applied to the dentine. There are many others of the same opinion. There is no doubt about the fact, that it is more difficult to successfully seal a paste into a cavity without squeezing any of it out upon the gum, than to seal arsenical fibres. In arsenical fibres there is no fluid to squeeze out while the sealing is being made. Then he says: "Cover with a water-tight temporary filling of cement or the gutta-percha preparations." Are these water-tight? Sandarac is just about as water-tight as gutta-percha or some of the cements. Is a water-tight sealing necessary? Admittedly, it is desirable; but are there any water-tight temporary sealings?—doubtful. Will the author of the very admirable paper on arsenic, from which the above quotations are taken, make some experiments to test the permeability of some of the sealings he says are water-tight. He might also test the permeability by micro-organisms. To obstruct bacteria should be one use of a sealing. Not having the time to make the experiments, look over a report made to the New York State Dental Society at Albany, May, 1902, and later published in the *Dental Cosmos*; also a paper read before the



Odontological Society, February, 1903, Chicago, and later published in the *Dental Review*. It is to correct the loose statement made by the author, that sealings are water-tight, that we take the time to call his and his readers' attention to the matter. Authors who depend upon the literature for the facts of a paper would do well to read all on the subject and then make a fine distinction between what is fact and what is doubtful, otherwise many less qualified to judge may be misled.

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### DENTISTRY IN TRINIDAD.

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The following advertisements are clipped from a City of Trinidad, B.W.I., newspaper—a city of 50,000 prosperous inhabitants. Dentistry is a side line to most anything. In more respects than one is this advertisement different from those we see in the northern part of the continent. There might be room for another dentist in that city.

#### NOTICE.

Mr. Joshua Brathwaite notifies his friends and the public that his book-binding office is removed to his residence in Melville Street.

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#### NOTICE.

Mr. Joshua Brathwaite is now again free to attend to the extraction and filling of teeth (as formerly) and again offers his services to his friends as public auctioneer. Melville Street, 23rd September, 1903.

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#### NOTICE.

Mr. Joshua Brathwaite as Agent for the several firms will supply "Homeopathic Cures," "Nature's Health Restorer" (the celebrated blood purifier and liver regulator); also Books on all subjects—Magazines, Illustrated Journals and Newspapers to all who may require. Melville Street, 23rd September, 1903.

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### EARLY HISTORY OF DENTISTRY IN ONTARIO.

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Among the many commendable things that the Board of Directors of the R. C. D. S., of Ontario are undertaking, there are none more to be commended than the attempt to get the early history of dentistry in Ontario, as narrated by those who were in practice in the sixties and seventies. Such records can be now gathered

and filed away until sufficient material is secured to write a history. The Boards of the other provinces should gather such records also, so that when the history of dentistry in Canada shall have been written, it will not be of any province alone. Below is the copy of a circular sent out to many of those who are likely to have a memory of such happenings as will go to make history. If there are any who have not received a circular and have any data which might be of interest, they should notify the Secretary, and he will send paper upon which to write such information. In this issue appears a history of Dr. Spooner, of Montreal, who first used arsenic to devitalize a pulp. It will be from such histories and records that the Board expects some day to have the history of dentistry in Ontario written.

ROYAL COLLEGE OF DENTAL SURGEONS OF ONTARIO,

Office of the Secretary,

96 College Street.

*Dear Sir,*—You will probably have noticed on page 24 of Minutes of the last meeting of the Directors of the R. C. D. S., of Ontario, that I was directed to correspond with the older practising dentists of the Province of Ontario, with a view to obtaining, as far as is now possible, information concerning the early history and development of dentistry in this Province. The Directors will be very much pleased, if, in the interests of the "History of Dentistry in Ontario," you, as one of the early practitioners, would furnish the following particulars written out as fully as you conveniently can, viz.:—

- 1st. Name and occupation of your parents ; date and place of your birth, educational advantages, etc.
- 2nd. Your occupation after leaving school.
- 3rd. Circumstances connected with your entering upon the study of Dentistry.
- 4th. Name and residence of your instructor in Dentistry and any particulars you can give about him, where and when, and under whom he studied, how long in practice when you became his student, character of his practice when he died (if not still living), and any any other facts that may be of historical interest.
- 5th. The date when you commenced to study, the length of your pupilage, nature of instruction given, what ground did it cover. Give description of the usual outfit of a Dentist at that time.
- 6th. Describe your commencement of practice on your own account, your location, other places visited, if any, the character of operations performed, the fees received for the same, the development of practice, the improvements introduced down to the year 1875.
- 7th. Any information you may be disposed to give relating to your life outside the practice of Dentistry, identification with the church, official positions held therein, connection with political parties, public positions occupied as School Trustee, Reeve, Councillor, Justice of the Peace, etc.
- 8th. Any information concerning other Dentists who had preceded you or were contemporary with you in the early days.

The purpose, as you will readily understand, is not idle curiosity, but, while some of the pioneers are still living, to collect



information of the early history of Dentistry and of Dentists, in the several localities in the Province, which may be available for the preparation of an accurate "History of Dentistry in Ontario" in the not very distant future.

If this proposition meets with your approval, and you are prepared to contribute your share towards its accomplishment, kindly fill out and sign the enclosed post card and mail it to me.

It is intended to send out to all who will undertake to give the information desired, prepared paper on which it may be written, so that when returned, the several narratives may be properly filed for future use and reference. It is desired that the information asked for should be written up and forwarded, as promptly as convenient, to me by mail or otherwise.

Yours very truly,

J. BRANSTON WILLMOTT,

Toronto, Sept. 1st, 1903.

*Secretary R.C.D.S.*

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### **VIEWS EXPRESSED IN THE BRITISH DENTAL JOURNAL ON APPRENTICES.**

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"First of all our apprenticeship system has failed in its object. A very large percentage of students proceed to their hospital course with only the vaguest notions of mechanical dentistry. Secondly, the increased theoretical knowledge now required of the students, has made a serious inroad upon the time at his disposal for the practice of operative dentistry. For the mechanical side an increasing number of the profession are coming to the conclusion that a hospital training is the only remedy. Unfortunately the majority are not yet altruistic enough to give up the privileges and premiums which such a course would involve.

"Any practicable scheme of reform must, then, automatically tend towards the gradual extinction of the apprenticeship system.

In the same article appears a quotation from the rules of the General Medical Council on the subject of dental education, which says that not more than one year of apprenticeship to a registered dentist may be reckoned as a portion of the four years of professional study required. Then, in England, there is now a Bill which says there shall be only one year's apprenticeship according to the balance must be in hospital.

## Editorial Notes

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DR. PETERSON has begun practice in Dundalk.

DR. PALMER SMITH, of Carleton Place, has located in Toronto.

DR. W. J. BRUCE, of Owen Sound, has bought his old practice in Kincardine from Dr. Peterson.

DR. BARKER, of Chicago University, says, "I am convinced that the influence, for any considerable length of time of a non-investigating teacher cannot fail to be actually harmful to a student."

AT a recent meeting of the Board of Directors of the Royal College of Dental Surgeons, a committee was appointed to report on the arrangement of a curriculum with the University by which a student may graduate in both medicine and dentistry in six years.

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### PRACTICE FOR SALE.

Uptown Montreal dental practice, with complete Office, Laboratory and House Furniture. Everything first-class and in running order. Possession about the middle of March, 1904. Fine opportunity for young licentiate.

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